



## Planning & Development Services

One Civic Center  
7447 E Indian School Road, Suite 105  
Scottsdale, AZ 85251

# Home Improvement Guide

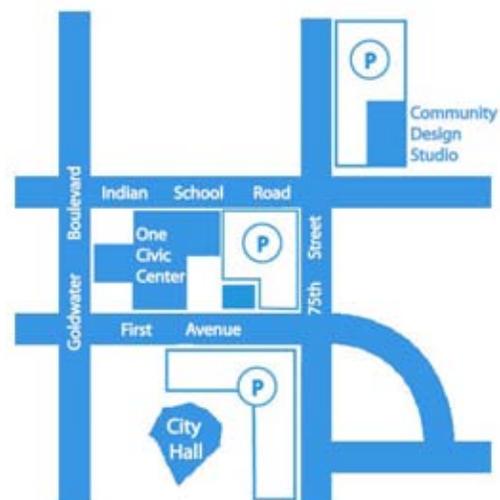
### *Assisting you in making “minor” home improvements...*

The City of Scottsdale’s Planning & Development Services Department is responsible for the interpretation and enforcement of city ordinances related to the construction, alteration, repair and demolition of buildings and structures. To ensure that construction complies with city codes, permits for certain types of work are required prior to commencing construction. Permits may be obtained at the “One Stop Shop” Permit Counter located on the first floor of One Civic Center, 7447 E Indian School Road, Suite 100 (see map below). Permit information is also available on the city’s web site at [www.scottsdaleaz.gov/onestopshop](http://www.scottsdaleaz.gov/onestopshop).

This booklet is offered to homeowners to assist you in making minor home improvements, such as patio enclosures or room additions. Please contact a Permit Services representative at (480) 312-2500 regarding your application requirements or visit the One Stop Shop in person.

Information contained in this booklet is intended to serve as a guide. It does not cover all building code and zoning ordinance requirements, nor does it replace the services of a design professional, which is always recommended.

**City of Scottsdale**  
**One Stop Shop Permit Counter**  
Planning & Development Services  
One Civic Center, First Floor  
7447 E Indian School Road, Suite 100  
Phone: (480) 312-2500  
E-mail: [PlanningInfo@ScottsdaleAZ.gov](mailto:PlanningInfo@ScottsdaleAZ.gov)  
On-Line: [www.ScottsdaleAZ.gov/OneStopShop](http://www.ScottsdaleAZ.gov/OneStopShop)



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## **Green Building Program**

There is an increasing level of interest in environmentally responsible building and a growing effort to make green building a regional initiative. Scottsdale's Green Building Program encourages environmentally responsible building in the Sonoran desert region by incorporating healthy, resource- and energy-efficient materials and methods in the design and construction of homes. It offers an alternative to homebuyers for sustainable living and the long-term advantages of owning an environmentally sound home.

**As a means to reduce the environmental impact of building, Scottsdale's program rates projects in the areas of site, energy, building materials, indoor air quality, water, and solid waste. A Green Building Checklist is used to gather a minimum of 63 points, choosing from over 150 green building options. The program is strictly voluntary and uses incentives to entice builder participation.**

**Since the establishment of our program in February of 1998, we have conducted a multitude of workshops, lectures and public events designed to educate and promote the benefits of environmentally responsible building. For participation in the program, builders must acquire a minimum amount of points from the green building checklist covering aspects of site use, energy, materials, indoor air quality, water and solid waste.**

Green Building Program  
City of Scottsdale  
7447 E. Indian School Road, Suite 125  
Scottsdale, Arizona 85251

[www.ci.scottsdale.az.us/greenbuilding](http://www.ci.scottsdale.az.us/greenbuilding)

## **PERMIT REQUIREMENTS**

### **Building Permit**

Required for all construction work including patio covers, room additions, carport and garage enclosures, walls/fences, retaining walls, accessory buildings, detached tool/storage sheds exceeding 200 square feet in size.

### **Electrical Permit**

Required to install, alter, reconstruct or repair electrical wiring on any building, structure, swimming pool or mechanical equipment.

### **Plumbing Permit**

Required to install, alter, reconstruct or repair any plumbing system, gas system, lawn sprinkler supply, water heater replacement.

### **Mechanical Permit**

Required to install, alter, reconstruct or repair any furnace, refrigeration or other air conditioning equipment or system, except portable or window units.

Note: A plan review is not required for most single-family residential electrical, mechanical and plumbing work, except for gas piping. The inspection process is used to ensure a correct installation per the building codes.

## **Expiration of Permits**

### **Building Plan Review Fee**

Permits must be issued within 180 days of the date the application fee is paid.

### **Building, Electrical, Mechanical and Plumbing Permits**

These permits will expire if work is not commenced within 180 days of the permit issuance, or if the work is not inspected by the city for a period of more than 180 days.

### **Extension of Time**

A time extension for a permit may be granted under certain circumstances. For specific information please contact the Development Services Department at 312-2500.

## **Compliance Orders**

Building Inspectors will issue a Compliance Order if work is started without having acquired the necessary permits. The owner of the property or contractor must then obtain the required permits plus pay a double fee before continuing the work.

## **APPLICATION REQUIREMENTS FOR A BUILDING PERMIT :**

Construction requiring a permit must be performed by the owner-applicant or a licensed contractor. It is the responsibility of the homeowner or the contractor to obtain a building permit.

Plans consisting only of a room addition, patio cover or a minor alteration may normally be checked at the counter (within 24 hours) by the Development Services Specialist. Projects which are more extensive require an application fee and will be reviewed by the appropriate plan review division.

Plan check fees are due at the time of submittal. Check with the "One Stop Shop" for the current cost of fees.

Note: Any project under construction or completed without a permit will be charged a double permit fee.

When applying for a permit, provide 2 sets of detailed plans (3 sets for normal plan review) which include:

1. **Site Plan:** Drawn to scale ; 1" = 20' (engineering scale) or 1/16" = 1' - 0" (architectural scale), providing the following information.
  - a. The property owners name, address and telephone number.
  - b. Project address and lot number or legal description.
  - c. Zoning classification.
  - d. Dimensions of lot and north arrow.
  - e. Dimensions of existing and proposed front, rear and side setbacks.
  - f. Dimension and type of all easements.
  - g. Locations and dimensions of all existing and proposed buildings.
  - h. Locations of new driveways and approaches.
  - i. Locations of covered patios, walls/fences and retaining walls.
  - j. Maricopa County Assessor's Parcel number.
  - k. Complete the attached FEMA block and add to site plan.
  - l. Property located in an A flood zone requires a grading and drainage plan sealed by a civil engineer.
  - m. Property located in a B, C, D or X flood zone, and located south of the Central Arizona Project (CAP) canal requires an architectural site plan for attached additions that match existing floor elevations. Property located north of the (CAP) requires a grading and drainage plan sealed by an architect or civil engineer.
  - n. Property located in an Environmentally Sensitive Lands district must comply with the regulations in Section 7.800 of the Zoning Ordinance.
  
2. **Floor Plans:** To scale ; 1/8" or 1/4" = 1' - 0" providing the following data.
  - a. Floor plan of addition or area of renovation.
  - b. Plan of rooms in existing areas adjacent to an addition or enclosure.
  - c. Direction and size of all floor and ceiling/roof framing members.
  - d. Location of all partitions and doors and windows by size and type.
  - e. Locations and symbols for all electrical fixtures, switches, outlets, etc.
  - f. Area in sq. ft. of existing residence and of any new addition.
  - g. Ceiling height; and height and location of soffits or sloped ceilings.

**3. Exterior Elevations:** At least two principal elevations to scale of 1/8" or 1/4" = 1'-0" providing data as follows. Not required for interior alterations only.

- a. Roof pitch and roofing type by size or weight.
- b. Exterior finishes by note and specifications.
- c. Locations of windows and doors with sizes given unless shown on floor plan.
- d. Lowest finish floor level and finish grade at exterior of building.
- e. Dimension from top of highest ridge to lowest finish floor level.

**4. Details and Sections:** To scale min. 3/8" = 1'-0".

- a. Sections through new construction exterior wall showing all details of construction from footing to highest point of roof, designating all materials and members by size, type, grade, thickness, spacing and finishes.
- b. Details and engineering on truss rafters if used.
- c. Sections and details of all critical construction points or special structural items. (Include stairs, fireplaces, skylights, etc.).

**5. Additional Attachments:**

- a. Water meter calculation sheet to be completed if you are adding any new water fixtures.
- b. Soils Waiver required if new foundations are planned.
- c. Truss Waiver may be used only by an architect or engineer that has sealed the plans.

The City of Scottsdale has adopted the following Codes:

2003 International Building Code	2003 International Fire Code
2003 International Residential Code	1999 National Electrical Code
2003 International Mechanical Code	1994 Uniform Plumbing Code

All building codes have been adopted with amendments which are available at the "One Stop Shop" for a nominal fee.

Refer to the table of contents for pages relating to sample construction details.

## **APPLICATION REQUIREMENTS FOR WALLS AND FENCES :**

### **SOUTH OF SHEA BOULEVARD :**

- a. Provide site plan showing fence location, buildings and easements.
- b. Provide FEMA block (available from records department).
- c. Include detail of construction (city standard or engineered design).

*In "A" flood zones an engineered site plan is required.*

### **PRODUCTION & SEMI-CUSTOM SUBDIVISIONS AND CUSTOM PARCELS :**

- a. Submit the original approved grading and drainage plan with a re-approval block (re-approval block must be filled out completely)
- b. Delta all changes.

c. Please show the following information on the grading and drainage plan :

1. Horizontal location of all fences and walls.
2. Location of all block openings (drainage features).
3. Size and description of openings.
4. Configuration of all lot-to-lot or lot-to-tract flows.
5. Footing and wall details for all fences and retaining walls.
6. Structural calculations for all fences and walls or attach approved fence standards.
7. Top of footing and top of wall elevations for all fences and walls.
8. Location of all easements (to include 5 foot offset for re-vegetation or 5 foot buffer for NAOS).
9. Drawing of face of all fences.

Note: Limits of side property line fences and return fences may be field located and certified by use of special inspection, sealed by the engineer of record.

## **INSPECTION REQUIREMENTS**

All construction or work for which a permit is required is subject to city inspections and must remain accessible and exposed for inspection purposes until approved.

The following inspections are required, depending upon the amount of work being done:

1. Foundation inspection: When the excavation for footings is completed, with steel reinforcement in place, but before any concrete is placed.
2. Under-slab or under-floor inspection: When under-slab or under-floor plumbing, mechanical and /or electrical is installed, including the subfloor.
3. Masonry inspection: When required; reinforcing steel is in place, but before grouting.
4. Roof deck – strap & shear wall: When all roof sheathing is nailed, straps and tie-downs are in place.
5. Framing inspection: When all walls, fire blocking, draftstops and fireplaces are completed and all electrical, plumbing and mechanical work are roughed in, but before any of this work is covered.
6. Insulation inspection: When insulation is in place, prior to installation of gypsum board.
7. Lath or gypsum board inspection: When all lath is in place, but before any plastering is applied.
8. Final inspection: When the building or construction is complete and all electrical, plumbing and mechanical fixtures are in place but before the structure is occupied.

## **APPEALS FOR VARIANCES**

Minor modifications to the Zoning Ordinance Development Standards, i.e. set backs, may be appealed to the Board of Adjustment. The Board of Adjustment considers hardship cases where a parcel's configuration does not permit the strict application of the Zoning Ordinance Development Standards. For additional information on the Board of Adjustment, please contact a Development Services Representative at 312-2500.

Minor variances to the Building, Electrical, Mechanical, Plumbing and Fire Codes may be requested of the Building Official, and may be appealed to the Building Advisory Board of Appeals. The Board of Appeals considers individual cases where the strict letter of the code is impractical and the modification is in conformance with the intent and purpose of the code. For additional information regarding minor variances, please contact the Building Official at 312-7080.

## **GENERAL BUILDING REQUIREMENTS**

### **Location on Property**

All dwellings, addition to dwellings and detached accessory buildings must conform to the zoning ordinance requirements of the city.

### **Private Garages**

In existing houses without a fire sprinkler system, the materials of construction on the garage side of a frame wall between the dwelling and garage must be of one-hour fire resistive construction consisting of 5/8" fire resistive sheet rock or gypsum lath and plaster. The ceilings must be protected in the same manner. Doors must be 1 3/8" minimum thickness, solid core, with self-closing device. Windows between the garage and house shall be unopenable and of wire glass set in steel frames. No opening shall lead directly into a room used for sleeping. These requirements also apply to carport conversions to garage.

In fire sprinkler houses, the one-hour fire resistive construction and solid core door are exempt. However, a self closing, and tight fitting door is required.

### **Roof Construction**

The allowable span of roof rafters is measured from the wall plate to the roof ridge, unless the rafters are attached to intermediate bearing partitions. Floor joist spans are measured between bearing members.

Roof trusses may be used, provided the truss designs are sealed and signed by an engineer licensed in Arizona. Seal shall be dated within latest city adopted building code. All truss designs shall be identified on the framing plan.

### **Room Sizes**

At least one room in a dwelling shall be not less than 120 square feet. Other habitable rooms except kitchens and bathrooms closets and halls shall contain not less than 70 square feet.

### **Stairways**

Stairways must be a minimum of 36" in width with at least one handrail. The rise of stairs shall not be more than 7 3/4" and the tread width shall not be less than 10". The vertical headroom clearance shall not be less than 6'8". The handgrip portion of handrails shall be a minimum 1 1/4" to maximum of 2" in cross-sectional dimension and must be located between 34" and 38" above the nosing of treads and landings. Openings in railings shall be of such design that a sphere 4" in diameter cannot pass through.

### **Wall Framing-Wood**

Exterior walls of one story wood frame building shall be constructed with stud framing not less than 2 x 4, spaced not more than 24" on centers, supporting roof and ceiling only and maximum of 10' in height. "Utility" grade studs shall be a minimum 16" o.c. and support only roof and ceiling load to a maximum 8' height. Non-loading bearing "utility" grade studs may be 10' in height.

### **Lumber Identification**

All framing members and plywood or other sheathing types shall be identified by an approved grade mark.

**SINGLE FAMILY RESIDENTIAL ZONING TABLE**

This is only a general guide. Some revisions to the Zoning Ordinance may not be reflected here. Refer to the Zoning Ordinance for specifics.

PRIVAT E}Zone	Allowed Uses (See Zoning Ordinance for complete list)	Minimum Lot Size		Yard Requirements in Feet			* Max Height in Feet
		Sq. Ft	Lot Acres/Unit	Front	Side	Rear	
R1-190	Single family dwellings, churches, schools, parks, temp sales, office buildings & model homes. Uses subject to a use permit: schools, cemetery, golf course, recreational uses, private colleges, public utility buildings.	190,000	4.36	60	30	60	30
R1-130		130,000	2.98	60	30	60	30
R1-70		70,000	1.61	60	30	60	30
R1-43		43,000	0.99	40	20	35	30
R1-35		35,000	0.80	40	15	35	30
R1-18		18,000	0.41	35	10	35	30
R1-10		10,000	0.23	30	7	25	30
R1-7		7,000	0.16	20	14 agg 5 min	25	30
R1-5		4,700	0.11	15	0 or 5	15/25	30

Single-family residential & townhouses require 2 parking spaces each dwelling unit.

\* **Building, height of** shall mean the vertical distance measured from a point of reference elevation established twelve (12) inches above the average elevation at the top of the curb of the street or streets adjacent to the property, or to the top of the crown of the roadway or roadways, if there is no curb, to the highest point of the coping of a flat roof, or to the highest point of a mansard roof or to the highest gable of a pitch or hip roof. In cases where drainage considerations supersede this ordinance, the point of reference elevation would be subject to the approval of the city engineer. This applies to areas designated as non-ESL. Areas designated as ESL or subdivisions with amended development standards need to refer to the ESL ordinance and/or individual subdivision standards.

**FEMA BLOCK**

**Flood Insurance Rate Map (FIRM) Information**

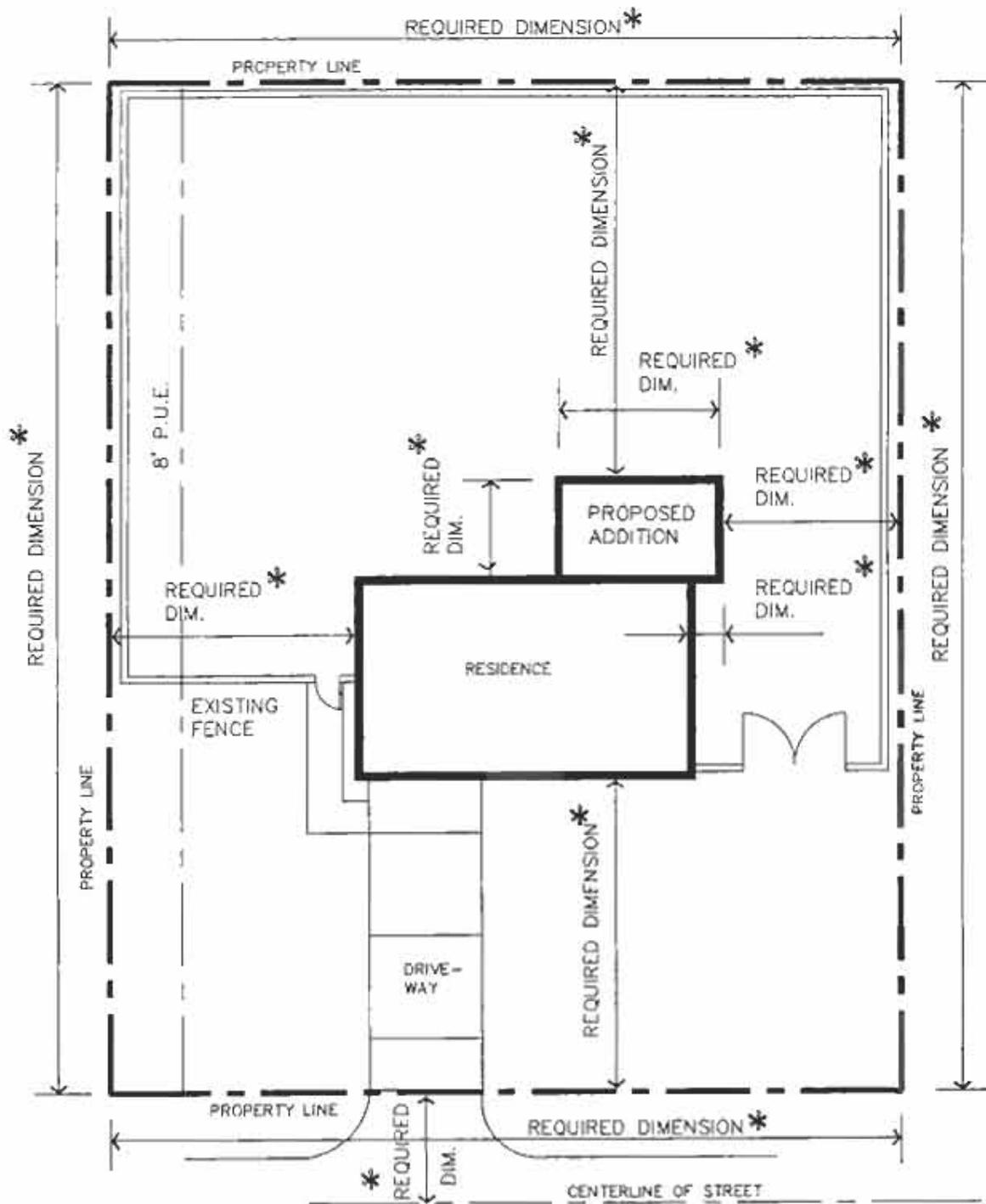
Community No.	Panel No. Panel Date	Suffix	Date of FIRM	FIRM Zone	Base Flood Elev.
<b>045012</b>					

(In AO zone give depth & velocity)

**For Areas Under Study or Preliminary FIRM**

Source of Map	Date of Map	Flood Zone	Base Flood Elev.

(In AO zone give depth & velocity. No habitable floors are permitted below lowest floor elevation)



PROVIDE :

ADDRESS AND ASSESSORS PARCEL NUMBER OF PROJECT

NORTH ARROW AND SCALE  
(1 INCH = 20 FEET SUGGESTED MINIMUM)

DIMENSIONS OF PROPERTY AND EASEMENTS  
(AVAILABLE FROM RECORDS DEPT.)

DIMENSIONS FROM PROPERTY LINES AND ALL EXISTING STRUCTURES, WALLS AND SWIMMING POOLS

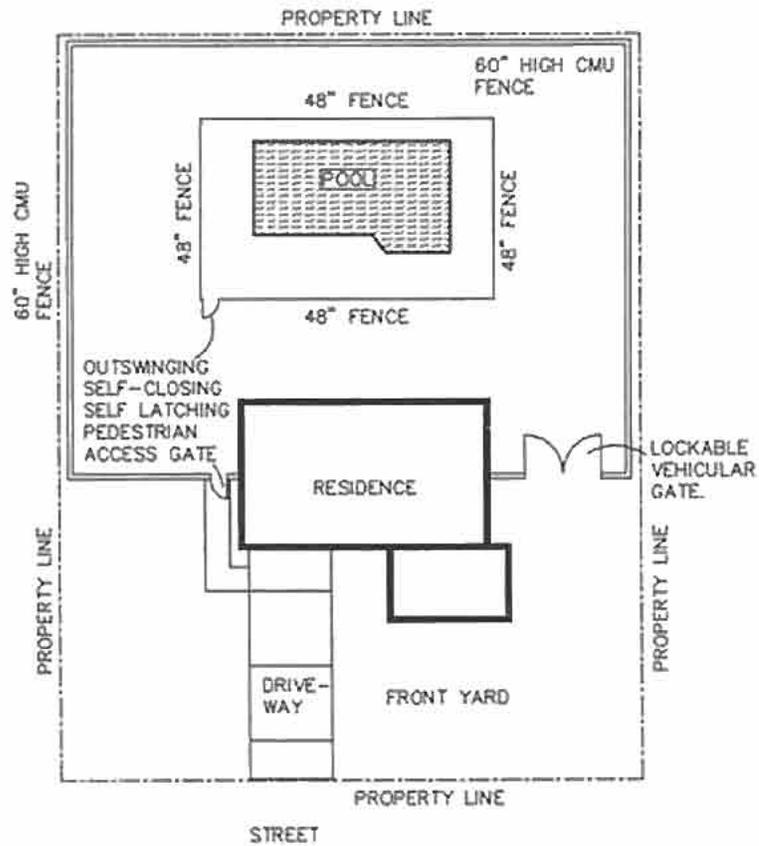
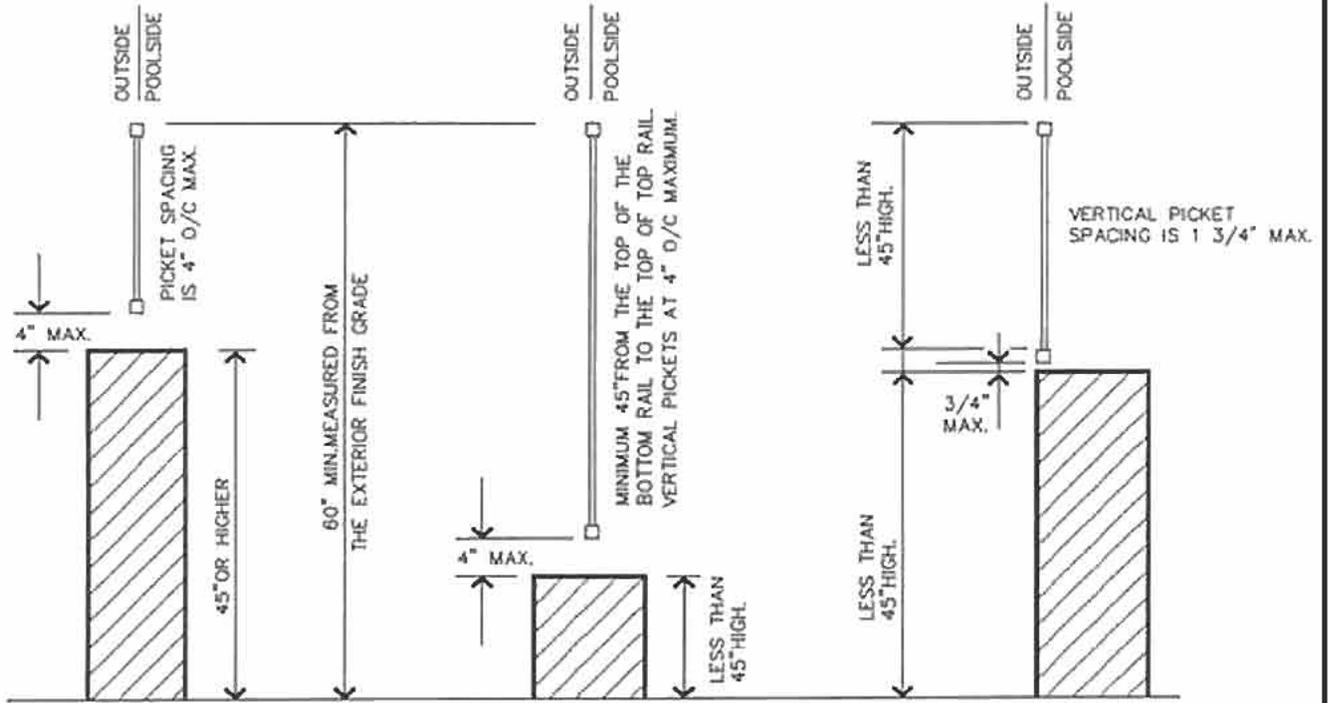
## TYPICAL SITE PLAN

SHOW LOCATION AND SIZE OF ALL DRAINAGE OPENINGS IN BLOCK WALLS

SHOW ALL LOT-TO-LOT DRAINAGE

SHOW TOP OF FOOTING AND TOP OF WALL ELEVATIONS FOR ALL FENCES AND WALLS

FEMA BLOCK



## POOL FENCE CONDITIONS

## BARRIERS FOR SWIMMING POOLS, SPAS AND HOT TUBS

Outdoor Swimming Pool. An outdoor swimming pool shall be provided with a barrier that shall be installed, inspected and approved prior to plastering or filling with water. The barrier shall comply with the following excerpt from the 2003 International Building Code:

1. The top of the barrier shall be at least 60 inches ( 1524 mm) above grade measured on the side of the barrier that faces away from the swimming pool. The top of a barrier that separates the pool only from habitable spaces on the same property shall be at least 48 inches (1219 mm) above grade measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance at the bottom of the barrier may be increased to 4 inches (102 mm) when grade is a solid surface such as a concrete deck, or when the barrier is mounted on the top of the aboveground pool structure. When barriers have horizontal members spaced less than 45 inches (1143 mm) apart, the horizontal members shall be placed on the pool side of the barrier. Any decorative design work on the side away from the swimming pool, such as protrusions, indentations or cutouts, which render the barrier easily climbable, is prohibited.

Where common fences on adjacent property lines of existing developed lots serve as the barrier, the height may be measured on the side that faces the swimming pool. The pool side of the barrier shall be not less than 20 inches from the edge of the water.

2. Openings in the barrier shall not allow passage of a 13/4-inch-diameter (44.5 mm) sphere.

EXCEPTIONS: 1. When vertical spacing between such openings is 45 inches (1143 mm) or more, the opening size may be increased such that the passage of a 4-inch-diameter (102 mm) sphere is not allowed.

2. For fencing composed of vertical and horizontal members, the spacing between vertical members may be increased up to 4 inches (102 mm) when the distance between the tops of horizontal members is 45 inches (1143 mm) or more.

3. Chain link fences used as the barrier shall not be less than 11 gage.

4. Where access gates are provided, they shall comply with the requirements of Items 1 through 3. Pedestrian access gates shall be self-closing and have a self-latching device. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the gate, (1) the release mechanism shall be located on the pool side of the barrier at least 3 inches (76 mm) below the top of the gate, and (2) the gate and barrier shall have no opening greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism. Pedestrian gates shall swing away from the pool. Any gates other than pedestrian access gates shall be equipped with lockable hardware or padlocks and shall remain locked at all times when not in use.

5. Where a wall of a Group R, Division 3 Occupancy dwelling unit serves as part of the barrier and contains door openings between the dwelling unit and the outdoor swimming pool that provide direct access to the pool, a separation fence meeting the requirements of Items 1, 2, 3 and 4 of Section 421.1 shall be provided.

EXCEPTION: One of the following may be used in lieu of a separation fence:

1. Self-closing and self-latching devices installed on all doors with direct access to the pool with the release mechanism located a minimum of 54 inches (1372 mm) above the floor.

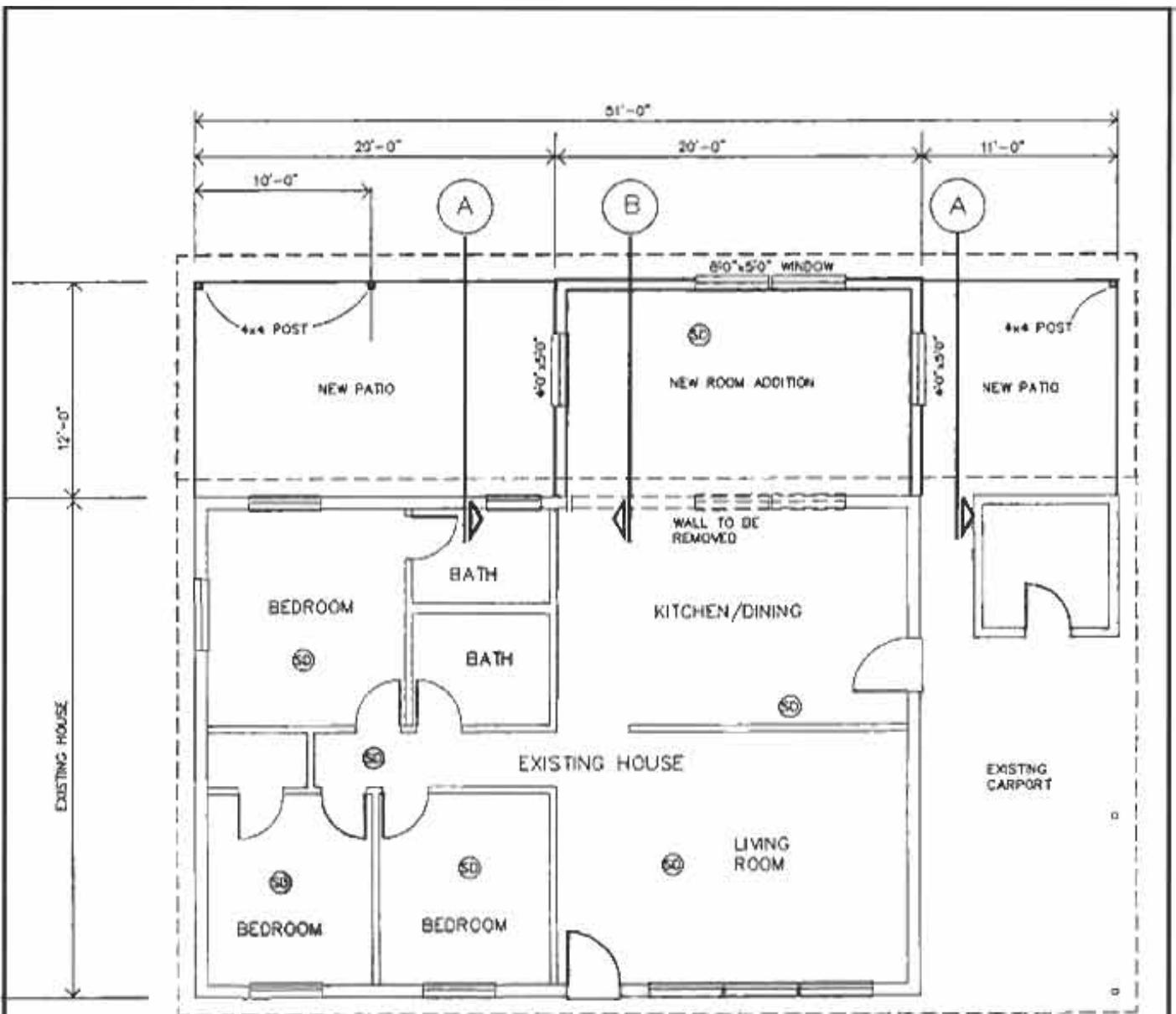
2. An alarm installed on all doors with direct access to the pool.

The alarm shall sound continuously for a minimum of 30 seconds within seven seconds after the door and its screen, if present, are opened, and be capable of providing a sound pressure level of not less than 85 dBA when measured indoors at 10 feet (3048 mm). The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as a touchpad or switch, to temporarily deactivate the alarm for a single opening. Such deactivation shall last no longer than 15 seconds. The deactivation switch shall be located at least 54 inches (1372 mm) above the threshold of the door.

3. Other means of protection may be acceptable so long as the degree of protection afforded is not less than that afforded by any of the devices described above.

6. Where an aboveground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then (1) the ladder or steps shall be capable of being secured, locked or removed to prevent access or (2) the ladder or steps shall be surrounded by a barrier that meets the requirements of Items 1 through 5. When the ladder or steps are secured, locked or removed, any opening created shall be protected by a barrier complying with Items 1 through 5.

“7. A pool safety cover which complies with ASTM F 1346-91 may be used to meet the requirements of Items 1 through 6 above for barrier protection between the dwelling unit and swimming pool provided all other portions of the perimeter fencing around the yard are installed and maintained as required. If switching devices are used for operation of the pool safety cover, they shall be key-operated, locked away, or otherwise located in an inaccessible location. An inaccessible location shall be at a height of at least 54 inches above the deck or adjacent ground level and where the entire pool can be visually inspected during cover operation.



## FLOOR PLAN

SCALE : 1/4" = 1'-0"

THE FOLLOWING INFORMATION SHOULD BE INDICATED ON THE FLOOR PLAN DRAWING:

SIZE OF ADDITION - SQUARE FEET, DIMENSIONS

SIZE OF EXISTING BUILDING - SQUARE FEET

SIZE AND TYPE OF ROOMS IN ADDITION

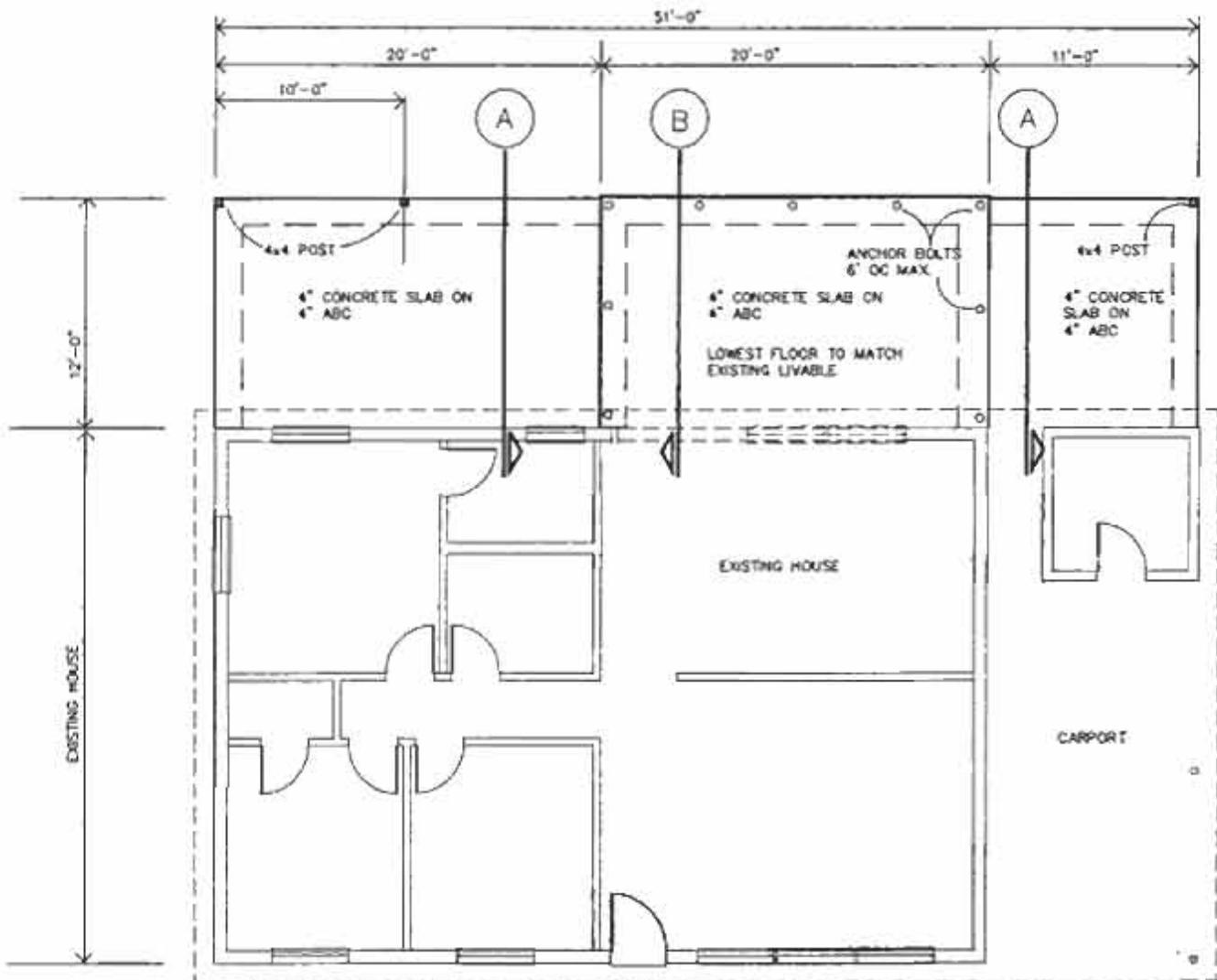
TYPE OF ROOMS ADJACENT TO ADDITION

LOCATION AND SIZE OF WINDOWS AND DOORS

FIREPLACE TYPE AND LOCATION

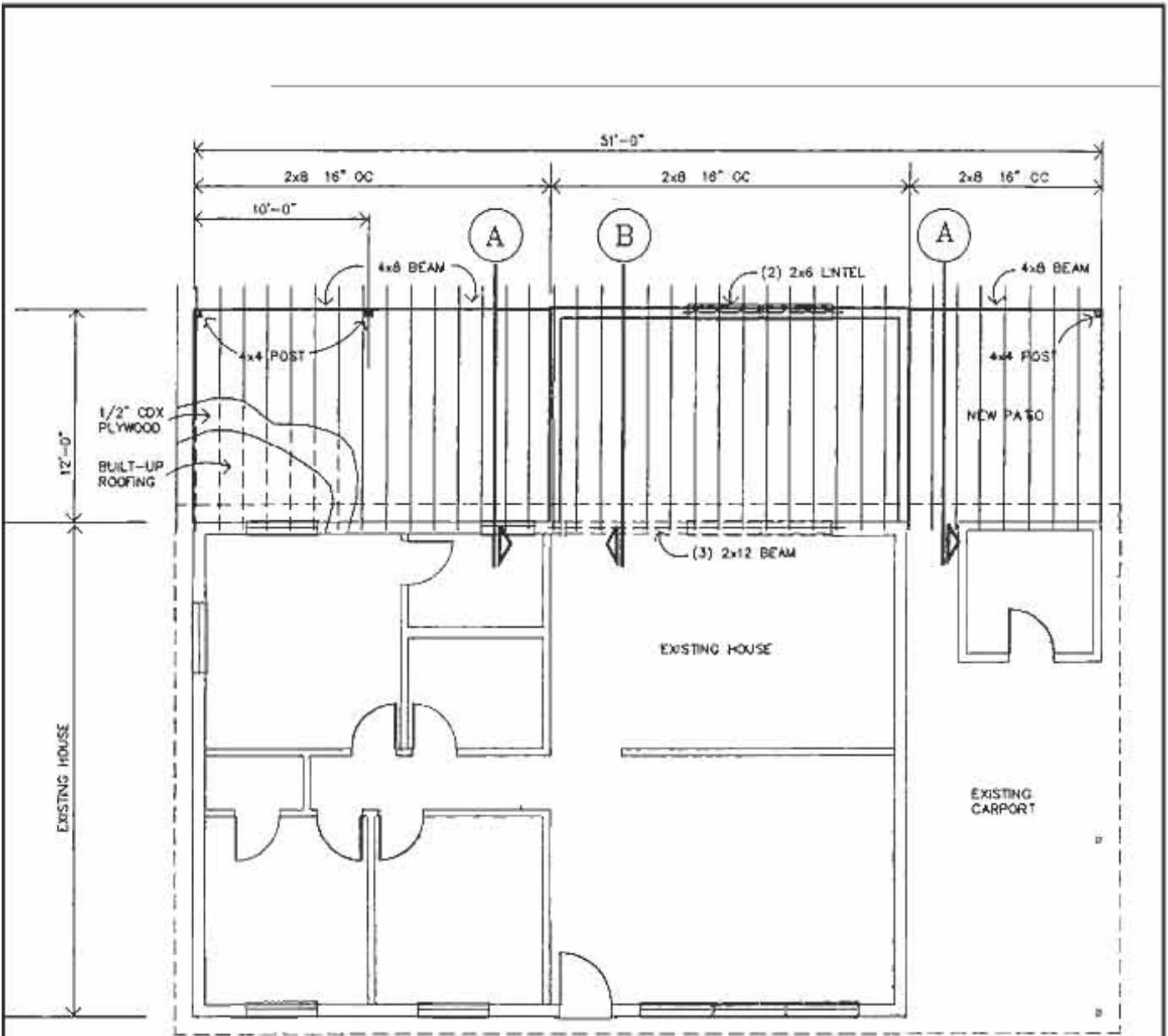
LOCATION OF NEW AND EXISTING SMOKE DETECTORS

CLEARLY SHOW AND NOTE ON PLANS THE SCOPE OF THE PROPOSED WORK. INDICATE WHAT IS EXISTING AND WHAT IS NEW.



## FOUNDATION PLAN

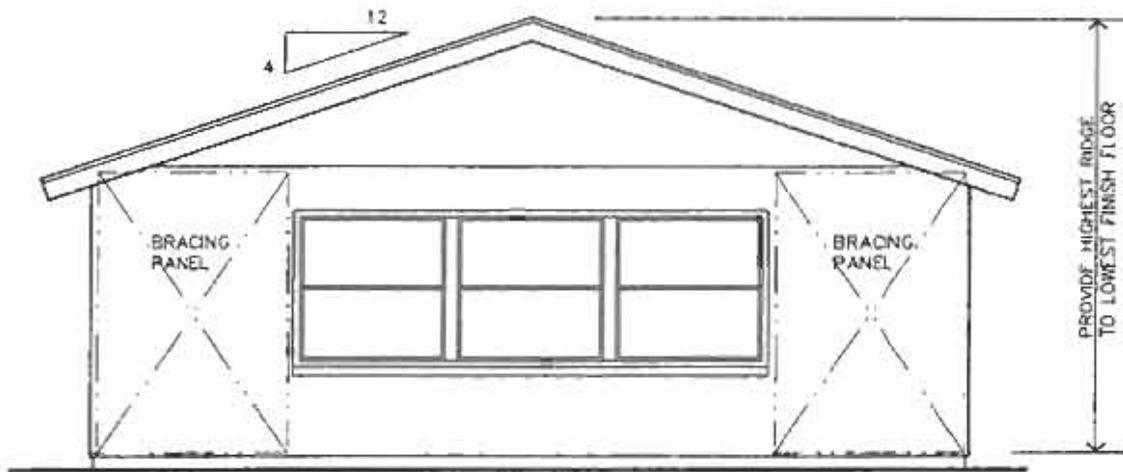
SHOW EXTENT AND LOCATION OF FOUNDATIONS AND SLABS  
 PROVIDE SOILS REPORT OR SOILS WAIVER FORM  
 FOOTINGS MUST BEAR MIN. 1'-6" BELOW NATURAL GRADE  
 PROVIDE MINIMUM 2 #4 CONTINUOUS IN FOOTINGS  
 SHOW LOCATION OF POSTS AND COLUMNS  
 SHOW LOCATION OF ANCHOR BOLTS AND HOLD DOWNS  
 POST FOOTINGS SUPPORTING 750 lbs TO BE MIN. 24" x 24"



## FRAMING PLAN

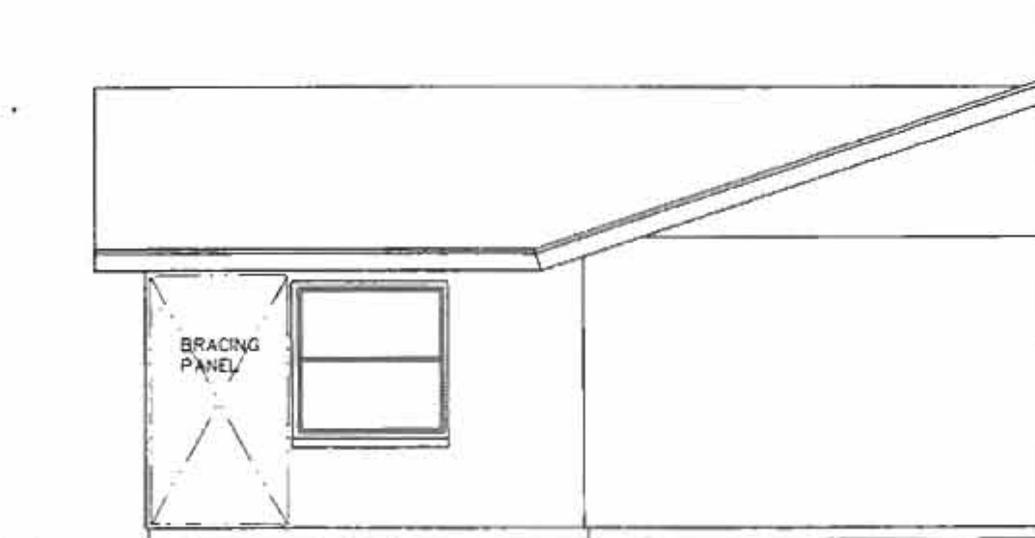
SHOW ON PLANS.

- A. RAFTER/JOIST SIZE, SPACING AND EXTENT
- B. POSTS AND BEAMS
- C. CONNECTION DETAIL REFERENCE
- D. SHEAR WALL LOCATION AND LENGTH



REAR ELEVATION

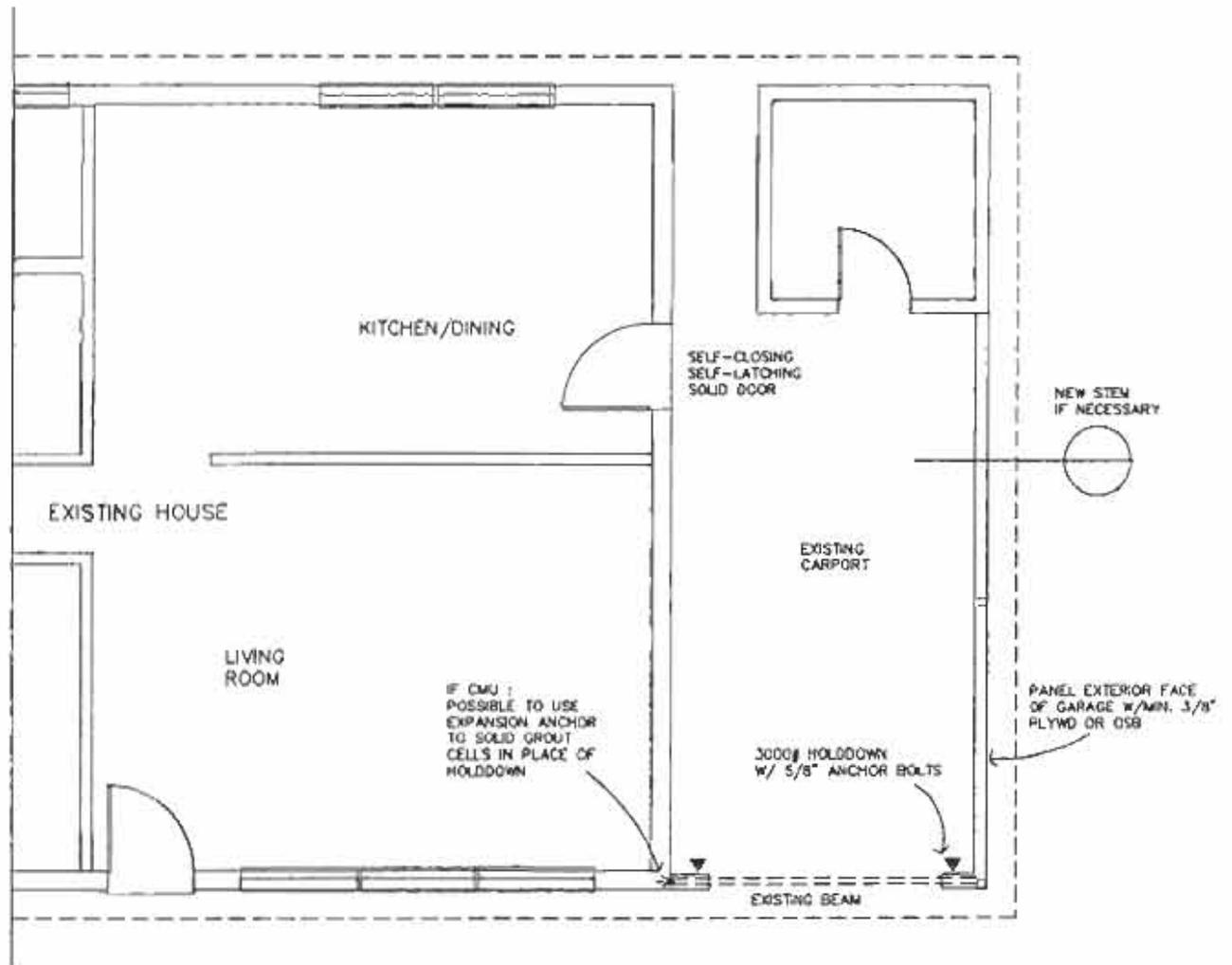
- PROVIDE MIN. 2 ELEVATIONS
- SHOW EXTERIOR WALL FINISHES
- SHOW PITCH OF ROOF
- INDICATE ROOFING MATERIAL
- SHOW LOCATION OF BRACING PANELS
- PROVIDE DIMENSIONS LOWEST FIN. FLOOR TO HIGHEST RIDGE
- SHOW LOCATION OF ALL OPENINGS



SIDE ELEVATION

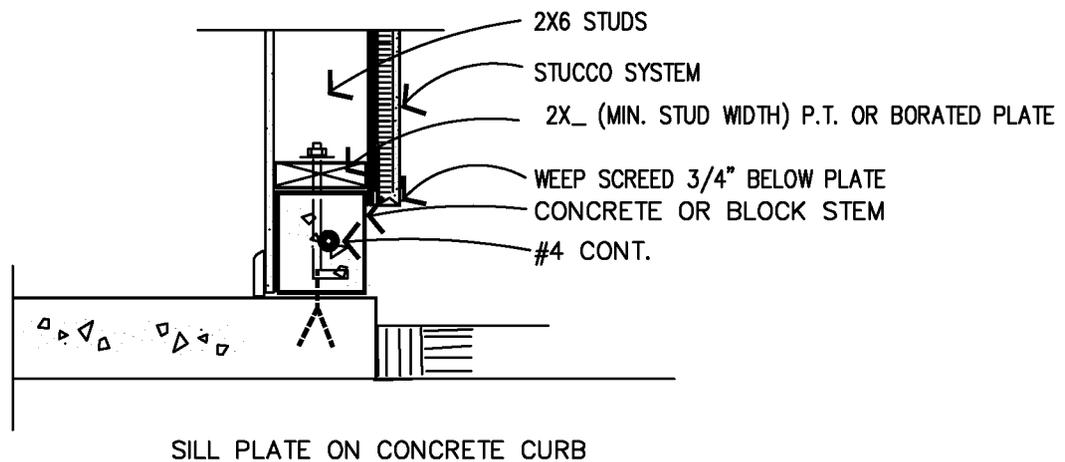
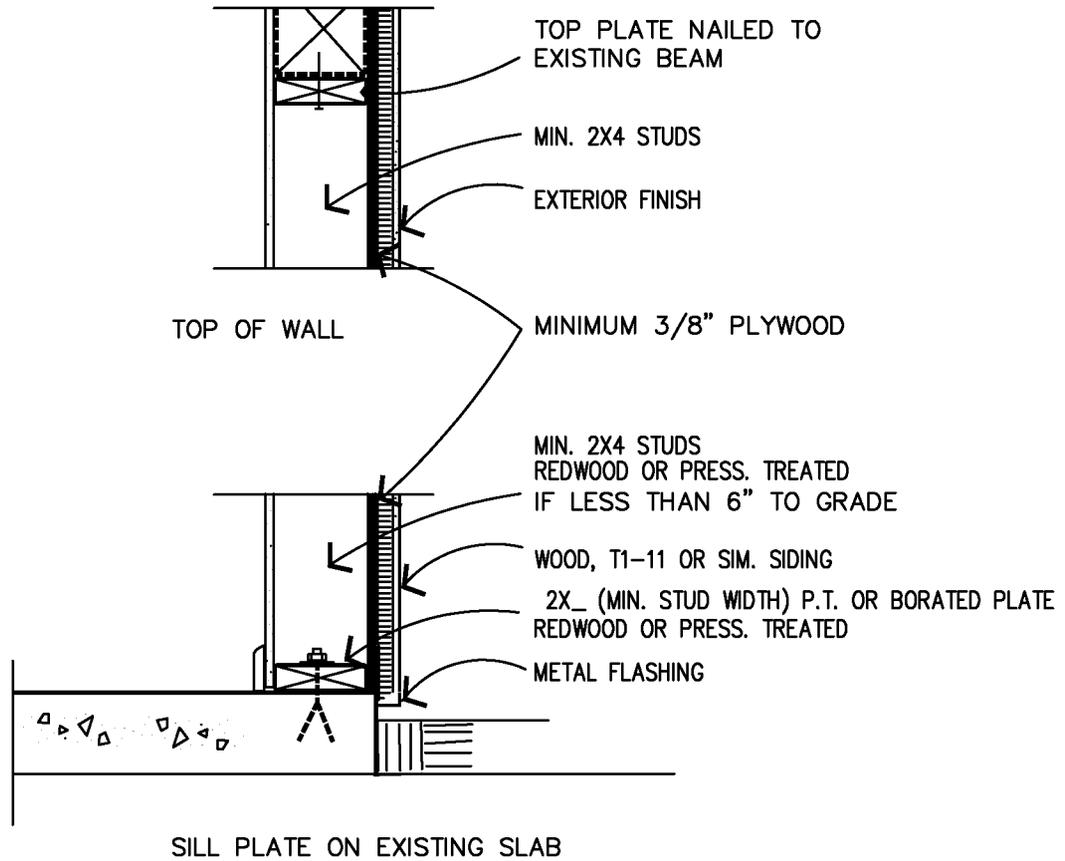


EXTERIOR ELEVATIONS



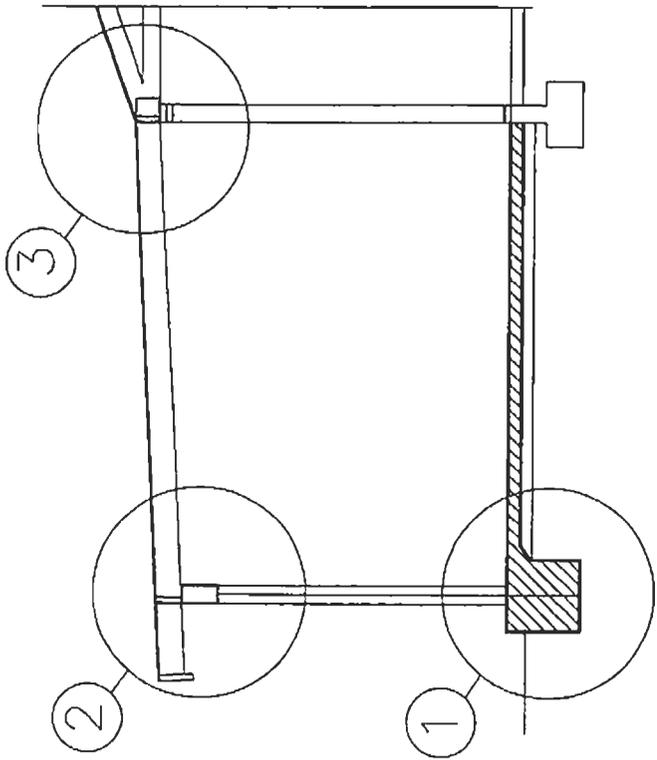
## CARPORT/GARAGE CONVERSION PLAN

SHOW LOCATION OF POSTS AND COLUMNS  
 SHOW LOCATION OF ANCHOR BOLTS AND HOLD DOWNS

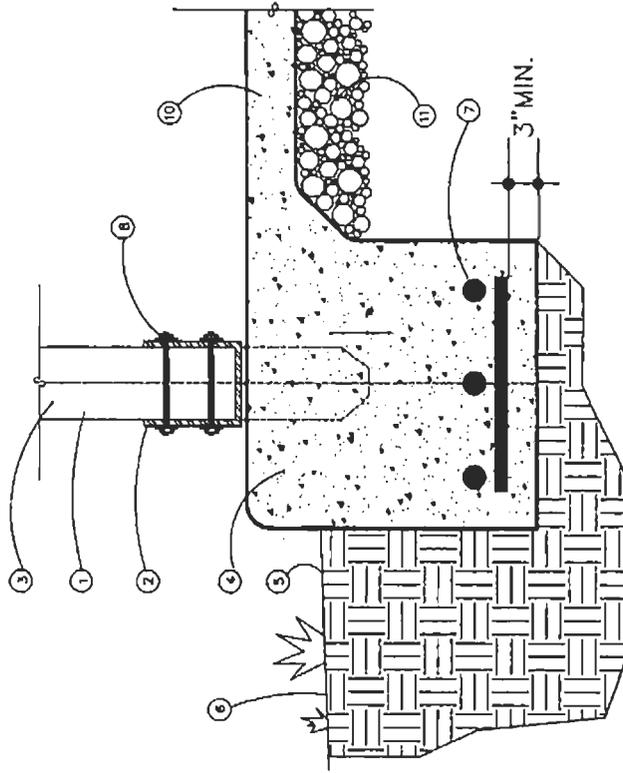


EXTERIOR WALL  
AT POST AND BEAM CONSTRUCTION

## CARPORT/GARAGE CONVERSION

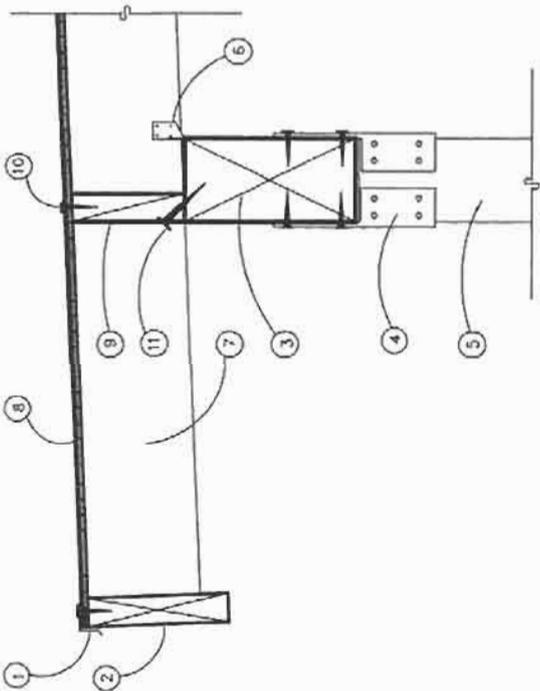


## PATIO KEY SECTION



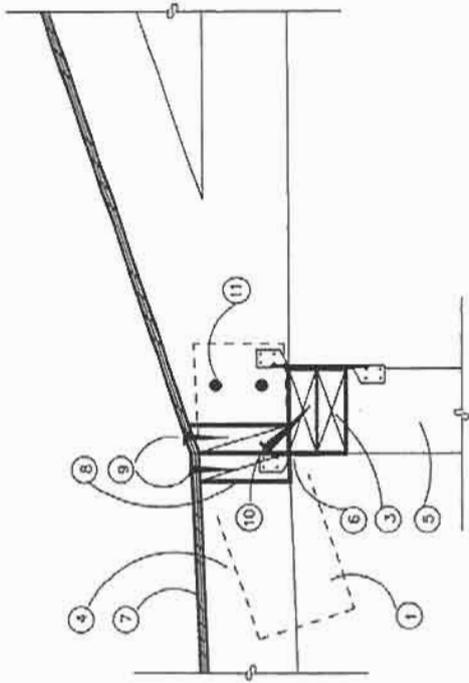
- ① POST, SEE PLAN FOR SIZE
- ② ADJUSTIBLE BASE, MIN, 1" ABOVE CONCRETE
- ③ CENTERLINE OF POST AND FOOTING
- ④ MINIMUM 24"X24" CONCRETE FOOTING MIN. 18" BELOW UNDISTURBED SOIL
- ⑤ FINISH GRADE
- ⑥ SLOPE MIN. 5% FOR 10' AWAY FROM STRUCTURE
- ⑦ (#4) #4 EA-WAY REINFORCING, SEE PLAN
- ⑧ THURBOLTS - SEE PLAN FOR SIZE.
- ⑩ 4" CONCRETE SLAB
- ⑪ 4" ABC FILL WITH 5 YEAR TERMITE TREAT

## ① POST FOOTING AT PATIO



- ① GALVANIZED IRON DRIP EDGE
- ② 2 x FASCIA
- ③ PATIO BEAM, SEE PLAN FOR SIZE
- ④ APPROVED COLUMN CAP WITH UPLIFT RATING
- ⑤ POST, SEE PLAN FOR SIZE
- ⑥ HURRICANE TIE @ EA. ROOF RAFTER
- ⑦ PATIO RAFTER, SEE PLAN FOR SIZE & SPACING
- ⑧ 1/2" CDX PLYWOOD SHEATHING
- ⑨ 2 x SOLID BLOCKING
- ⑩ EDGE NAILING 8d @ 6" O/C MIN.
- ⑪ 3-16d/BAY TOENAILING TO TOP PLATE

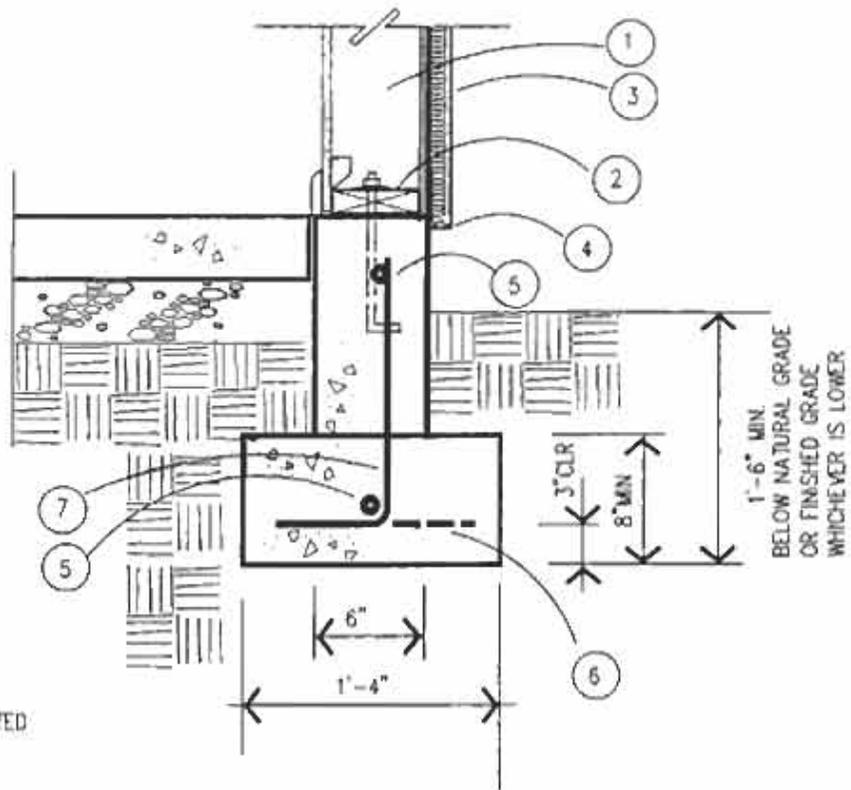
## ② PATIO BEAM CONNECTION



- ① CUT OVERHANG OFF, FLUSH W/ TOP PLATE
- ② DOUBLE TOP PLATE
- ③ NEW JOISTS BEARING ON TOP PLATE, SEE PLAN FOR SIZE
- ④ EXISTING STUD WALL
- ⑤ HURRICANE TIE @ EA. ROOF RAFTER OR FACE NAIL TO EXIST TRUSS
- ⑥ 1/2" CDX PLYWOOD SHEATHING
- ⑦ 2 x SOLID BLOCKING
- ⑧ EDGE NAILING 8d @ 6" O/C MIN.
- ⑩ 3-16d/BAY TOENAILING TO TOP PLATE
- ⑪ MINIMUM TWO 10d NAIL

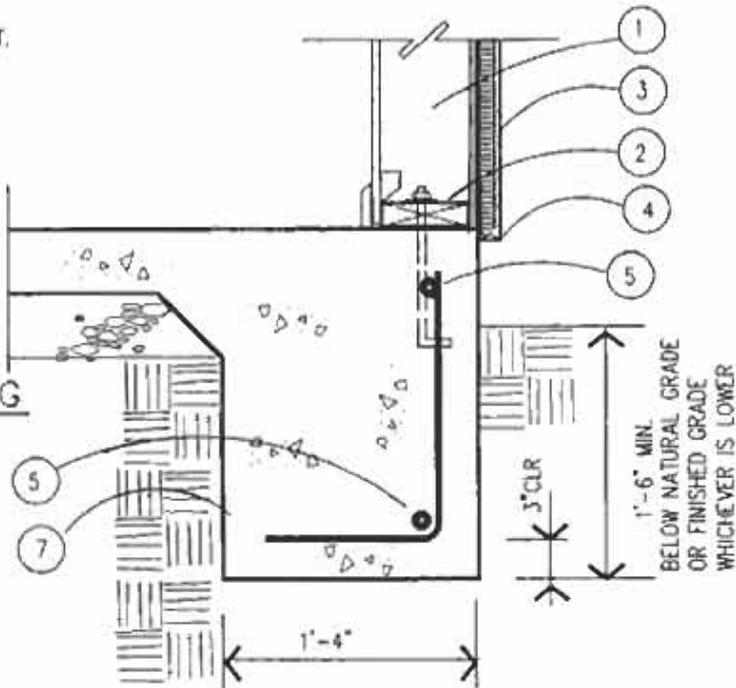
## ③ PATIO ROOF TO EXISTING HOUSE

### STEM WALL FOOTING

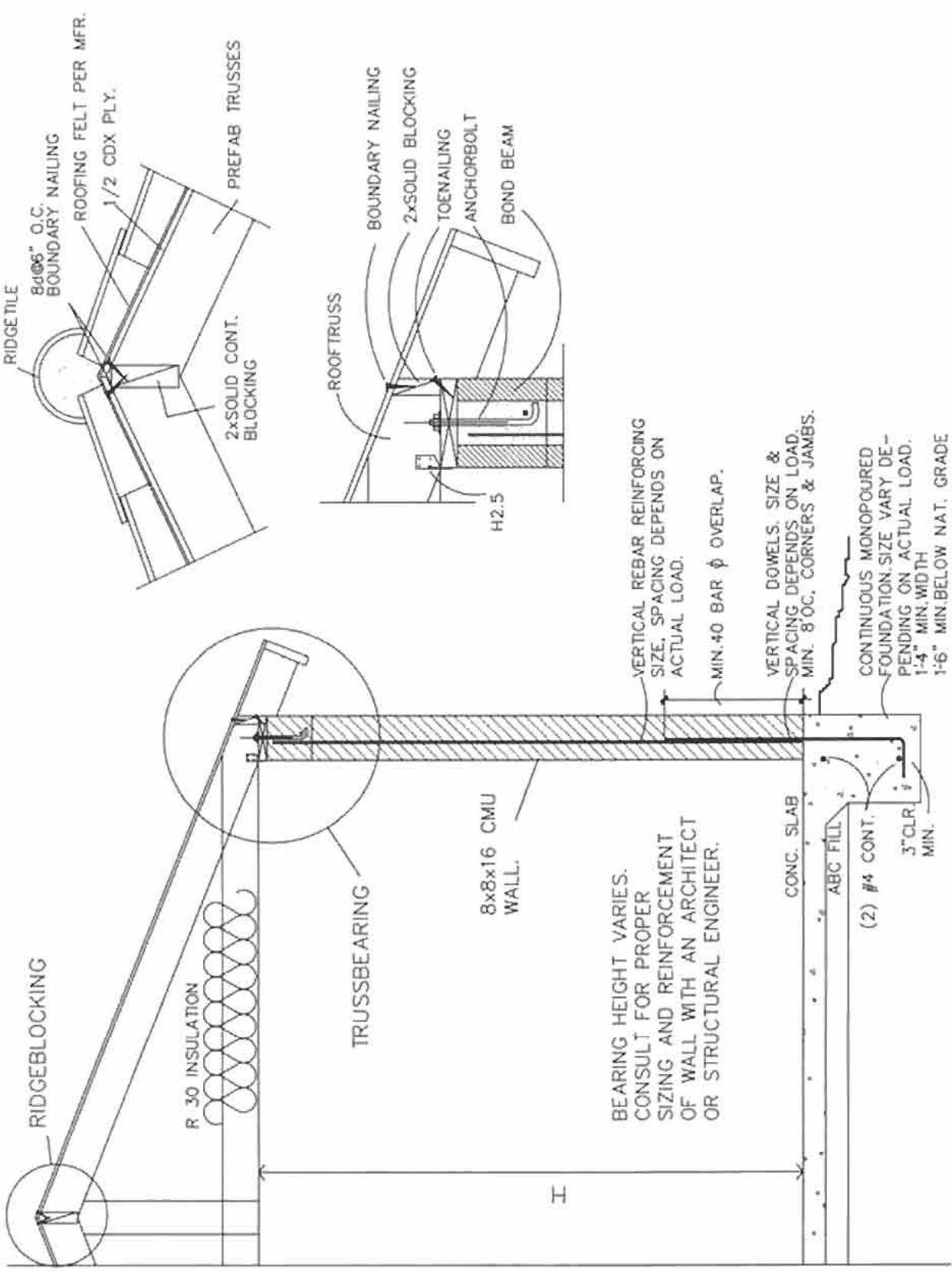


- 1 2X6 STUDS
- 2 2X6 PLATE-FOUND. REDWOOD OR PRESS. TREATED
- 3 STUCCO SYSTEM
- 4 WEEP SCREED 3/4" BELOW FIN.FL.
- 5 #4 CONT. TOP & BOTT.
- 6 ALT.BEND
- 7 #4 L @48" O.C.

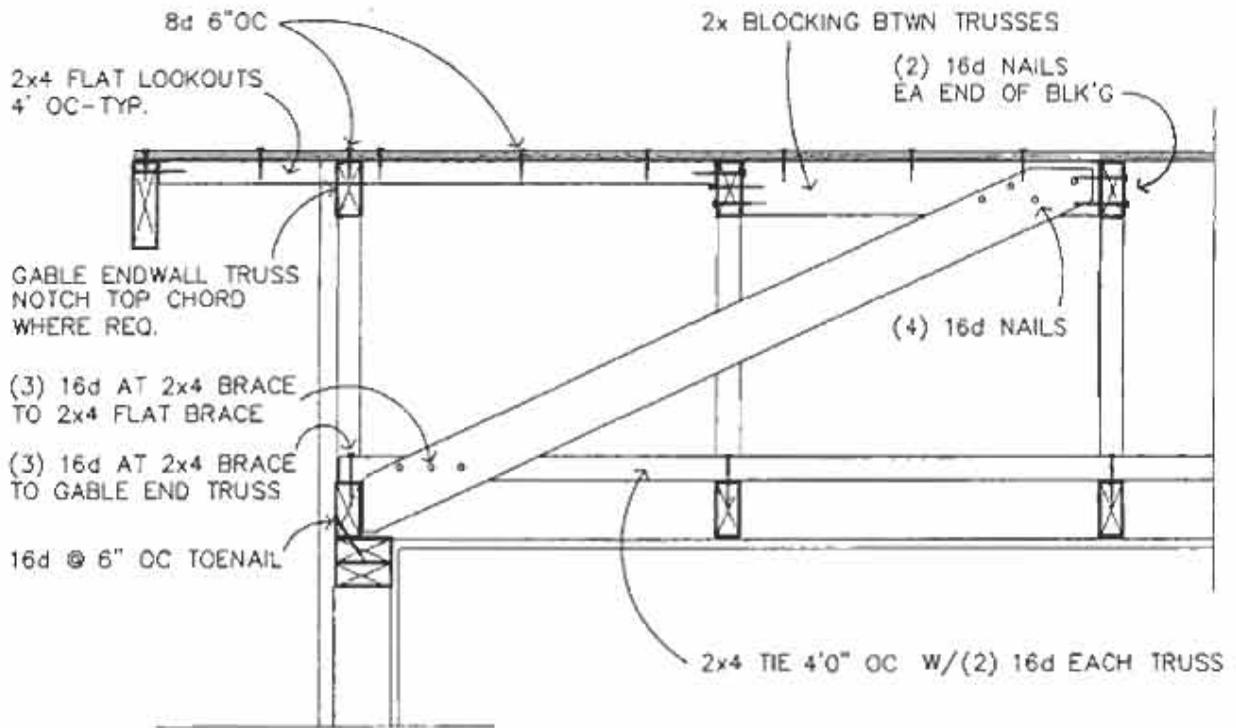
### MONOLITHIC FOOTING



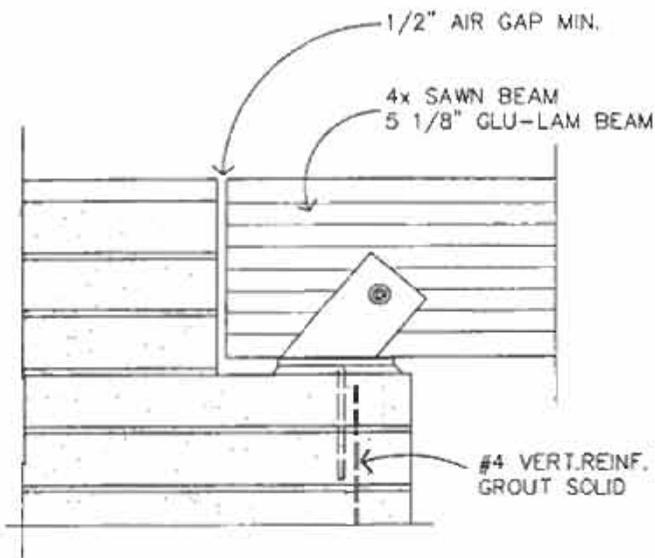
### EXTERIOR WALL FOOTING



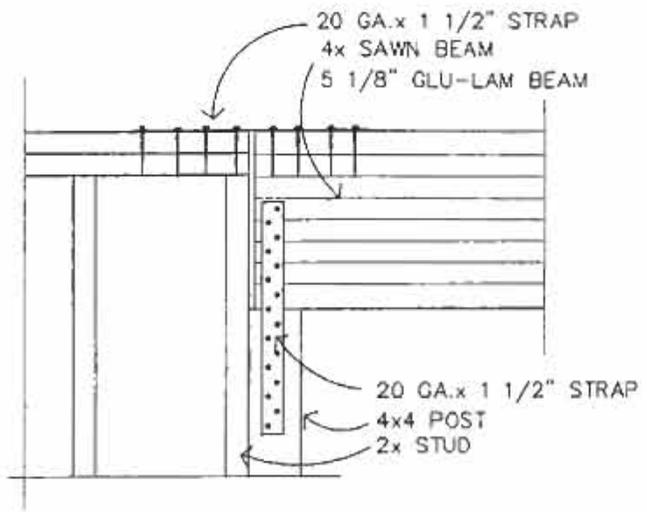
TYPICAL TRUSSBEARING ON MASONRY WALL



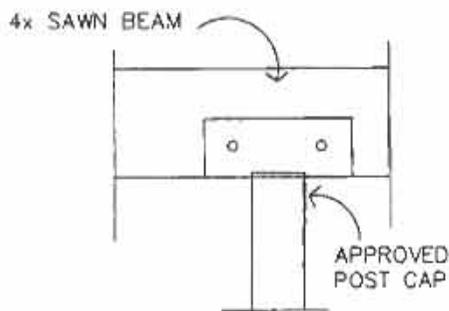
## GABLE END BRACING



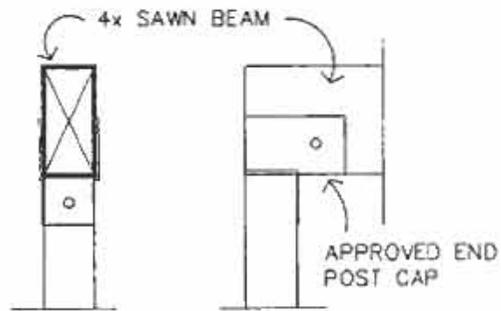
BEAM TO MASONRY  
WALL CONNECTION



BEAM TO FRAME  
WALL CONNECTION

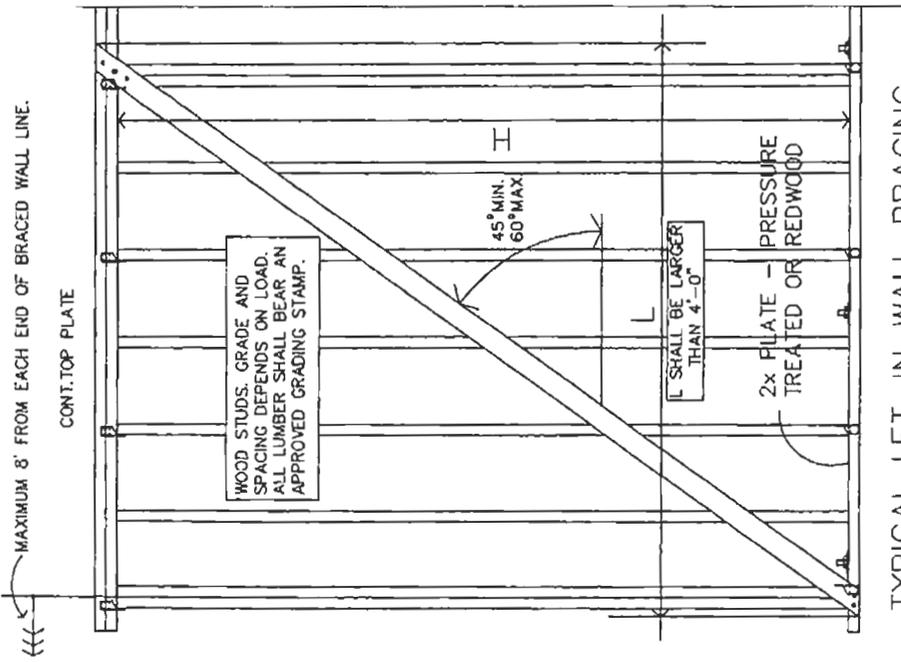


POST AND BEAM



END POST AND BEAM

## BEAM CONNECTIONS

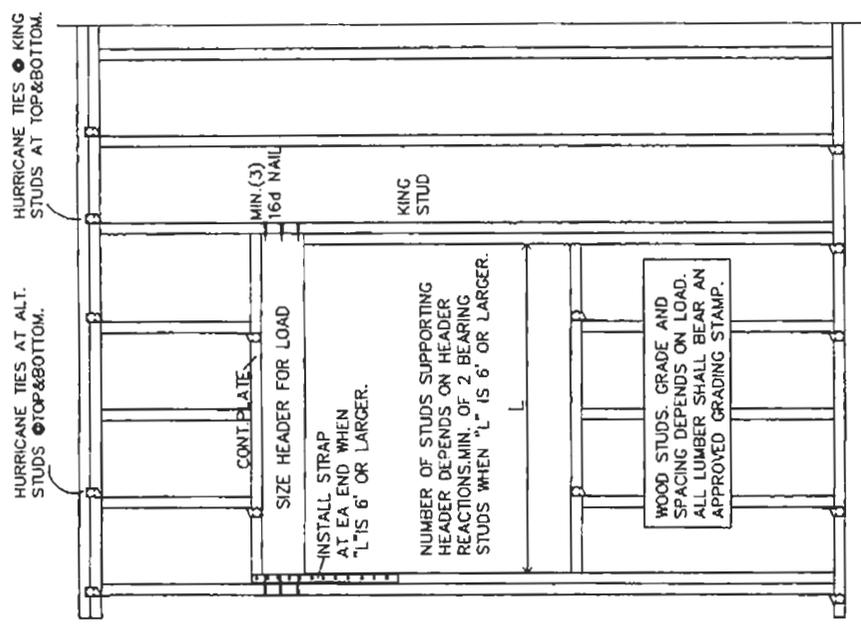


TYPICAL LET-IN WALL BRACING.

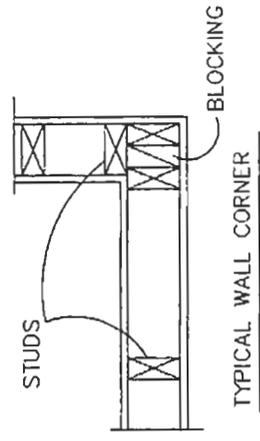
EXTERIOR WALLS OF ONE STORY WOOD FRAME BUILDINGS SHALL BE CONSTRUCTED WITH STUDS NOT LESS THAN 2x4 SPACED NOT MORE THAN 24" OC, SUPPORTING ROOF AND CEILING ONLY WITH MAXIMUM HEIGHT OF 10'.

THE EXTERIOR SIDE OF ALL EXTERIOR WALLS SHALL BE BRACED AT EACH END OF CORNERS AND EVERY 25' MAXIMUM

WHERE BRACING PANELS CANNOT BE UTILIZED DUE TO OPENINGS, PROVIDE MINIMUM 3/8" PLYWOOD SHEATHING FROM THE CORNER TO 4' BEYOND THE WALL OPENING OR THE NEXT CORNER



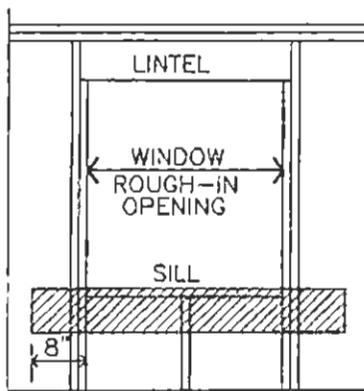
TYPICAL HEADER IN WOOD STUD WALL



TYPICAL WALL CORNER

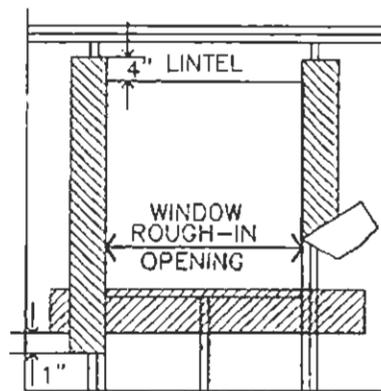
## TYPICAL WALL FRAMING

Step 1



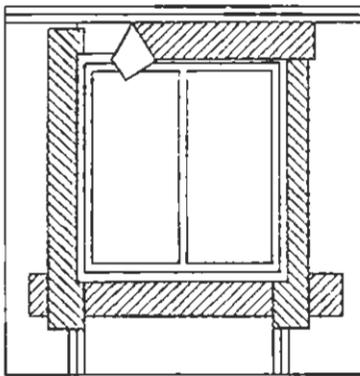
Attach sill strip with top edge level with rough sill; extend beyond edge of rough opening at least 8". Secure all building paper or similar approved flashing material with galvanized nails or power driven staples.

Step 2



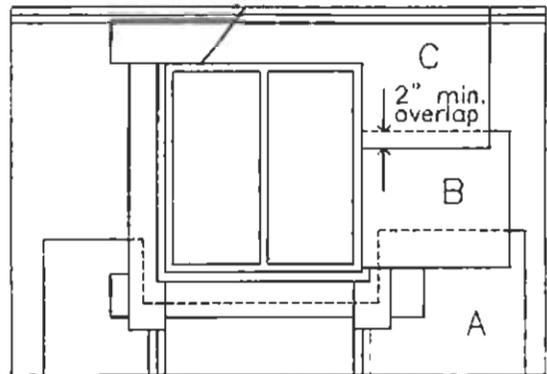
Attach jamb strips with side edge even with rough-jamb framing. Start strip 1" below lower edge of sill strip and extend 4" above lower edge of lintel.

Step 3



Install window into rough opening with sill and jamb flanges over previously installed flashing. Attach head flashing over the window flange.

Step 4



Commencing at the bottom (sole plate) of the wall, lay building paper under sill strip. Cut any excess building paper that may extend above the sill flange line on each side of opening (shown as dashed line). Do not cut building paper horizontally so the paper will lap over the jamb strips. Install successive lines of building paper (B,C,D etc) over jamb and head flanges, lapping each course.

## WINDOW FLASHING DETAIL

## NAILING SCHEDULE

BUILDING ELEMENTS	FASTENER	SPACING
Joist to sill or girder, toe nail	3-8d	
Sole plate to joist or blocking, face nail	16d	16 - o.c.
Top or sole plate to stud, end nail	2-16d	
Stud to sole plate, toe nail	3-8d or 2-16d	
Double studs, face nail	10d	24 - o.c.
Double top plates, face nail	10d	24 - o.c.
Sole plate to joist or blocking at braced wall panels	3-16d	16 - o.c.
Double top plates, minimum 48-inch offset of end joints, face nail in lapped area	8-16d	
Blocking between joists or rafters to top plate, toe nail	3-8d	
Rim joist to top plate, toe nail	8d	6 - o.c.
Top plates, laps at corners and intersections, face nail	2-10d	
Built-up header, two pieces with 1/2 - spacer edge	16d	16 - o.c. each
Ceiling joists to plate, toe nail	3-8d	
Continuous header to stud, toe nail	4-8d	
Ceiling joist, laps over partitions, face nail	3-10d	
Ceiling joist to parallel rafters, face nail	3-10d	
Rafter to plate, toe nail	2-16d	
1x brace to each stud and plate, face nail	2-8d	
Built-up corner studs	10d	24 - o.c.
Roof rafters to ridge, valley or hip rafters:		
toe nail	4-16d	
face nail	3-16d	
Rafter ties to rafters, face	3-8d	

### Wood structural panels, subfloor, roof and wall sheathing to framing

	fastener	edges	intermediate	
5/16- 1/2	6d common nail (subfloor, wall)		6	12
	8d common nail (roof)		6	12
19 /32 - 1	8d common nail	6		12
1 1/8 - 1 1/4	10d common nail or 8d deformed nail	6		12
cellulosic fiberbd sheathing	1 1/2 galv. roofing nail		3	6

- a. All nails are smooth-common, box or deformed shanks except where otherwise stated.
- b. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.
- c. Four-foot-by-8-foot or 4-foot-by-9-foot panels shall be applied vertically.

## ROOF JOIST TABLE

	O.C.	SPECIES	2x6	2x8	2x10	2x12
<b>CEILING JOIST</b>	12	DOUG FIR #2	14-10	18-9	22-11	
		HEM FIR #2	14-5	18-6	22-7	
	16	DOUG FIR #2	12'-10"	16-3	19-10	
		HEM FIR #2	12'-8"	16-0	19-7	
	24	DOUG FIR #2	10'-6"	13-3	16-3	
		HEM FIR #2	10'-4"	13-1	16-0	
<b>RAFTER WITH CEILING</b>	12	DOUG FIR #2	14-4	18-2	22-3	25-9
		HEM FIR #2	14-2	17-11	21-11	25-5
	16	DOUG FIR #2	12'-5	15-9	19-3	22-4
		HEM FIR #2	12'-3	15-6	18-11	22-0
	24	DOUG FIR #2	10'-2	12'-10	15-8	18-3
		HEM FIR #2	10'-0	12'-8	15-6	17-11
<b>RAFTER WITHOUT CEILING</b>	12	DOUG FIR #2	14-4	18-2	22-3	25-9
		HEM FIR #2	14-2	17-11	21-11	25-5
	16	DOUG FIR #2	12'-5	15-9	19-3	22-4
		HEM FIR #2	12'-3	15-6	18-11	22-0
	24	DOUG FIR #2	10'-2	12'-10	15-8	18-3
		HEM FIR #2	10'-0	12'-8	15-6	17-11

## SAWN LUMBER BEAMS-ROOF

Douglas Fir Larch No. 2 for 4x members

Douglas Fir Larch No. 1 for 6x members

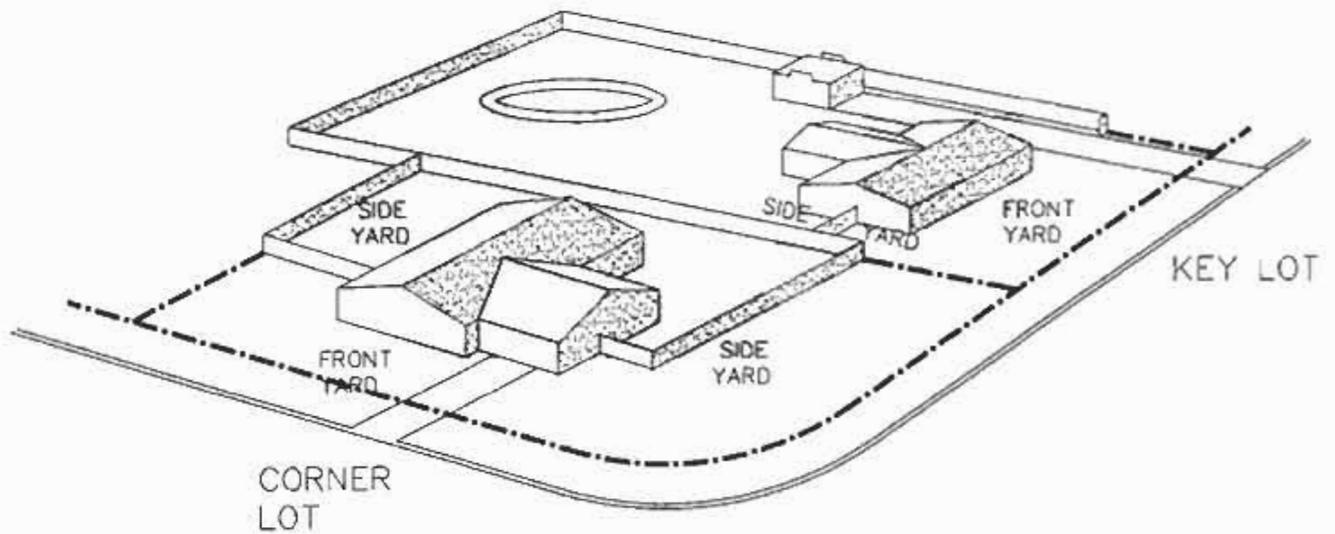
SPAN (ft)	4x6	4x8	4x10	4x12	6x6	6x8	6x10	6x12	
	DFL - #2 for 4x members				DFL - #1 for 6x members				
4		753	992	1267	1318	1187	1619	2050	2482
5		601	792	1010	1051	799	1292	1637	1981
6		456	658	839	873	552	1030	1361	1647
7		332	562	717	745	403	753	1164	1409
8		252	442	626	650	306	573	925	1230
9		180	347	524	576	240	450	727	1069
10		129	279	422	490	192	362	585	862
11		95	226	346	401	153	297	481	709
12		71	171	288	334	116	247	401	592
13		54	132	243	282	89	208	339	501
14			103	208	241	69	178	290	429
15			82	179	208	54	149	250	371
16			65	145	180		120	218	323
17			52	119	158		98	191	284
18				98	139		80	168	251
19				81	123		66	145	223
20				67	109		55	122	199
21				56	91			103	178

## BUILT-UP BEAMS-ROOF

Douglas Fir Larch No. 2

Superimposed load excluding beam weight

SPAN (ft)	2-2x6	2-2x8	2-2x10	2-2x12	3-2x6	3-2x8	3-2x10	3-2x12	
4		832	1214	1762	2485	1251	1823	2646	3727
4.5		693	1026	1460	2006	1042	1542	2193	3009
5		558	888	1245	1680	840	1335	1871	2520
5.5		459	740	1085	1444	691	1113	1630	2166
6		383	619	928	1252	577	931	1395	1878
6.5		324	524	787	1062	489	789	1183	1593
7		278	449	675	912	419	677	1015	1368
7.5		240	389	585	790	362	586	880	1185
8		209	339	511	691	316	512	769	1036
9		147	264	399	540	223	399	600	809
10		103	210	318	431	157	318	480	647
11		74	170	259	351	113	258	390	527
12		53	137	213	290	83	208	322	436
13			103	178	243	61	158	270	365
14			79	150	205		121	228	308
15			60	128	175		93	194	263
16				109	150		72	166	225
17				90	130		56	137	194
18				72	112			110	169
19				57	98			88	147
20					85			71	128



## CORNER LOT SITE PLAN

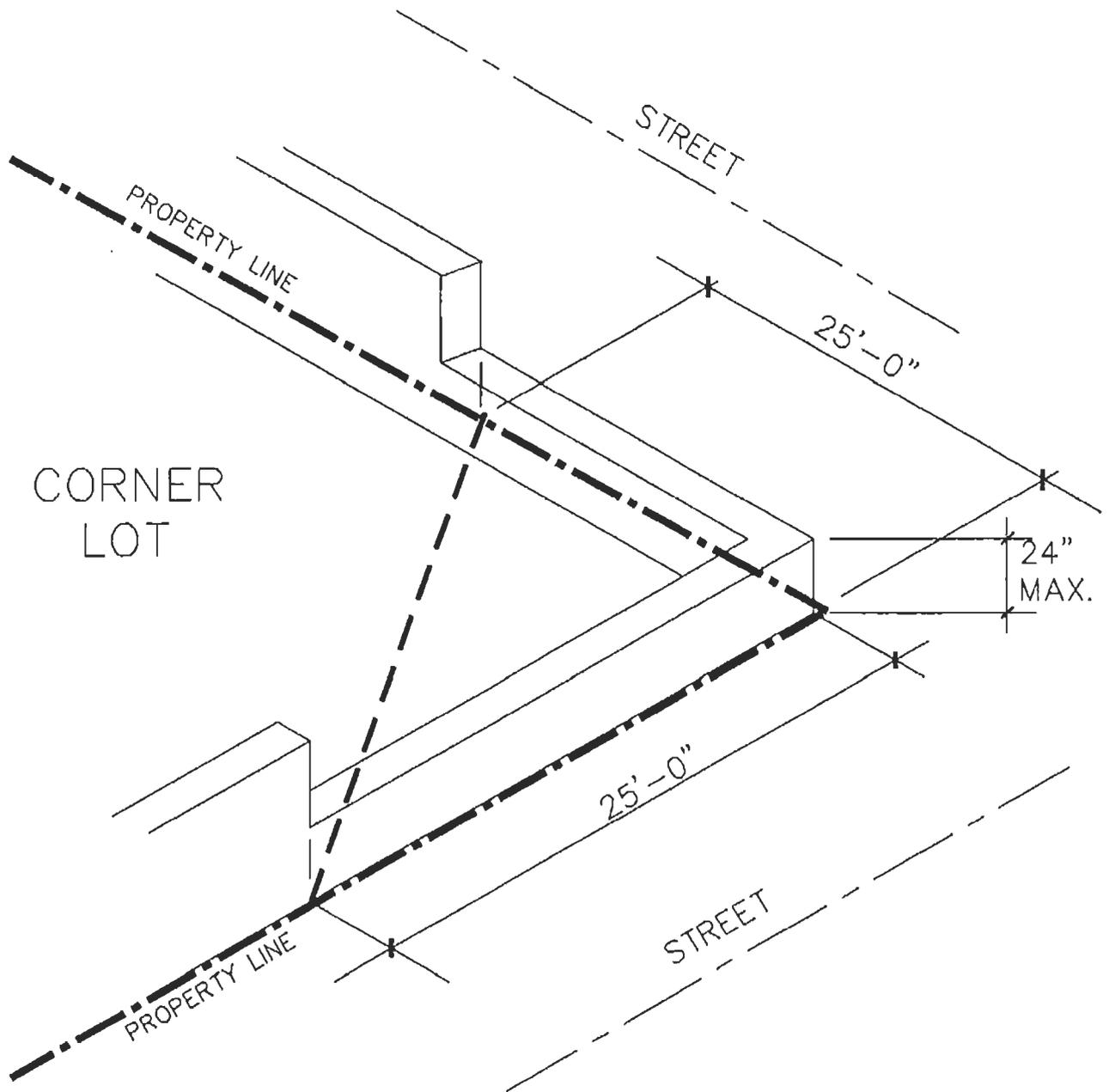
### CORNER LOT ABUTTING KEYLOT REQUIRED SETBACKS

ZONE	FRONT YARD	SIDEYARD FACING STREET
R1-43	40 ft	40 ft
R1-35	40 ft	40 ft
R1-18	35 ft	35 ft
R1-10	30 ft	15 ft
R1-7	20 ft	SEE ZONING ORDINANCE

SUBDIVISIONS MAY HAVE AMENDED STANDARDS THAT WOULD ALTER THESE REQUIREMENTS. BE SURE TO CHECK YOUR SUBDIVISION REQUIREMENTS WITH OUR RECORDS OR "ONE STOP SHOP" DEPARTMENTS.

KEY LOTS HAVE MORE RESTRICTIVE SETBACK REQUIREMENTS FOR BUILDINGS, ACCESSORY STRUCTURES AND WALLS.

MAXIMUM HEIGHT WITHIN TRIANGLE IS  
2 FEET – MEASURED FROM STREET LEVEL



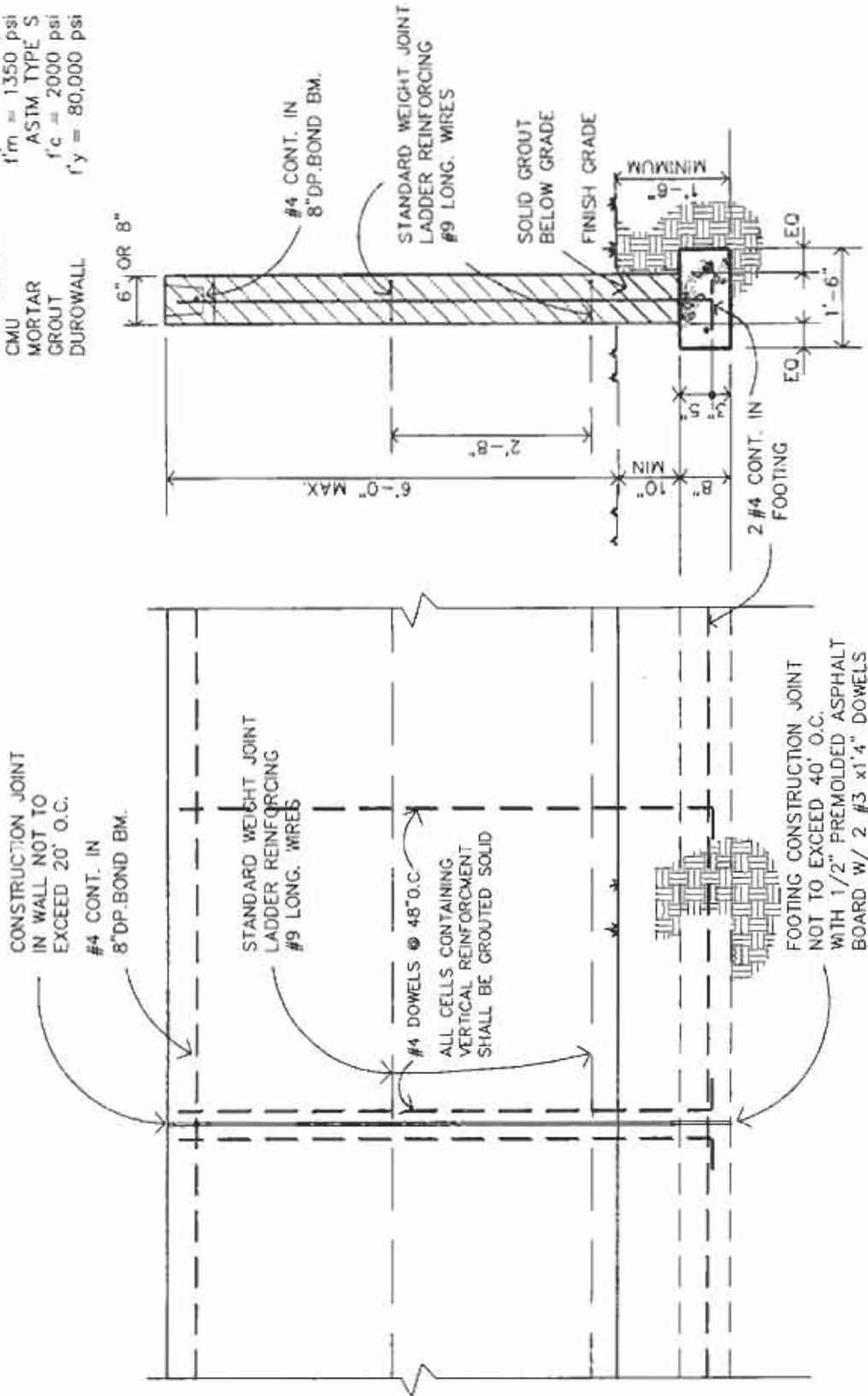
NOTE: WALLS IN THE FRONT YARD MAY NOT BE MORE THAN 3 ft HIGH.

## CORNER LOT WALL DESIGN

6" or 8" MASONRY FENCE WALL

MATERIALS :

CONCRETE  $f'_c = 2000$  psi  
 REINFORCING  $f_y = 40,000$ psi  
 CMU  $f'_m = 1350$  psi  
 MORTAR ASTM TYPE S  
 GROUT  $f'_c = 2000$  psi  
 DUROWALL  $f'_y = 80,000$  psi



SECTION

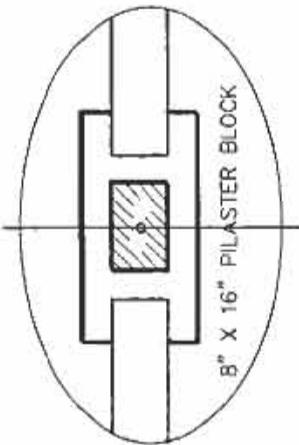
ELEVATION

8/24/2000 YEAR 2000

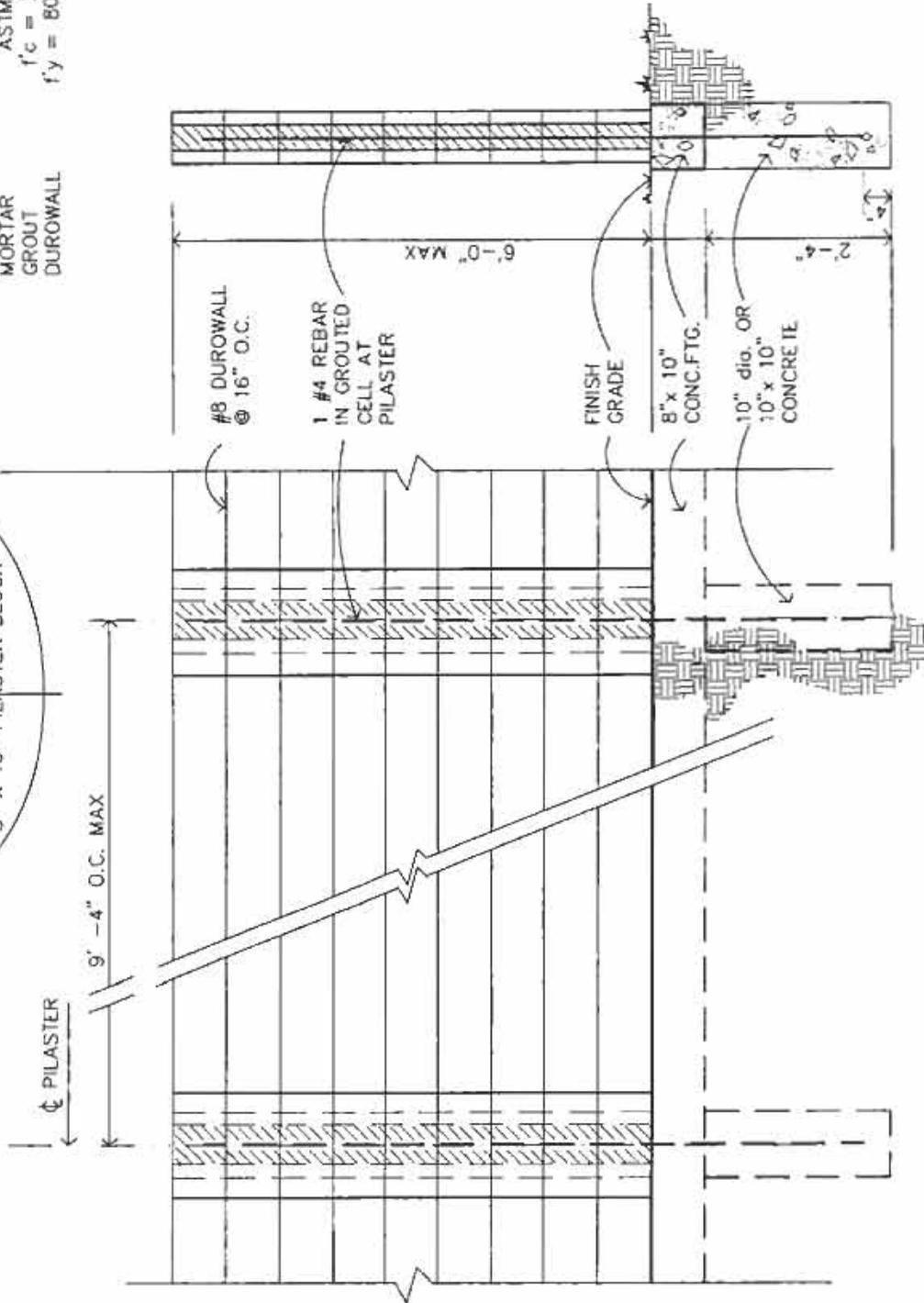
**4" MASONRY FENCE**  
(DOOLEY FENCE)

MATERIALS :

- CONCRETE  $f'_c = 2500$  psi
- REINFORCING  $f_y = 40,000$ psi
- CMU  $f'_m = 1350$  psi
- MORTAR ASTM TYPE S
- GROUT  $f'_c = 2000$  psi
- DUROWALL  $f'_y = 80,000$  psi



DETAIL AT PILASTER



SECTION

ELEVATION

YEAR 2000

GUARDRAIL MAY-BE  
REQUIRED DEPENDING ON  
ON-SITE CONDITIONS.

DESIGN CRITERIA: 1997 UBC  
SOIL 110 PCF  
ACTIVE PRESS.: 30 PSF  
COEF. OF FRICTION: 0.4  
(W/O PASS.PR.)  
ALL SOIL BRG.PR: 1500 PSF

MATERIAL STRENGTHS:

CONCRETE:  $F_c = 2500$  PSI  
MASONRY: HOLLOW CONC.BLOCK  
UNITS; ASTM C99  
GRADE: N  
 $F_m = 1500$  PSI

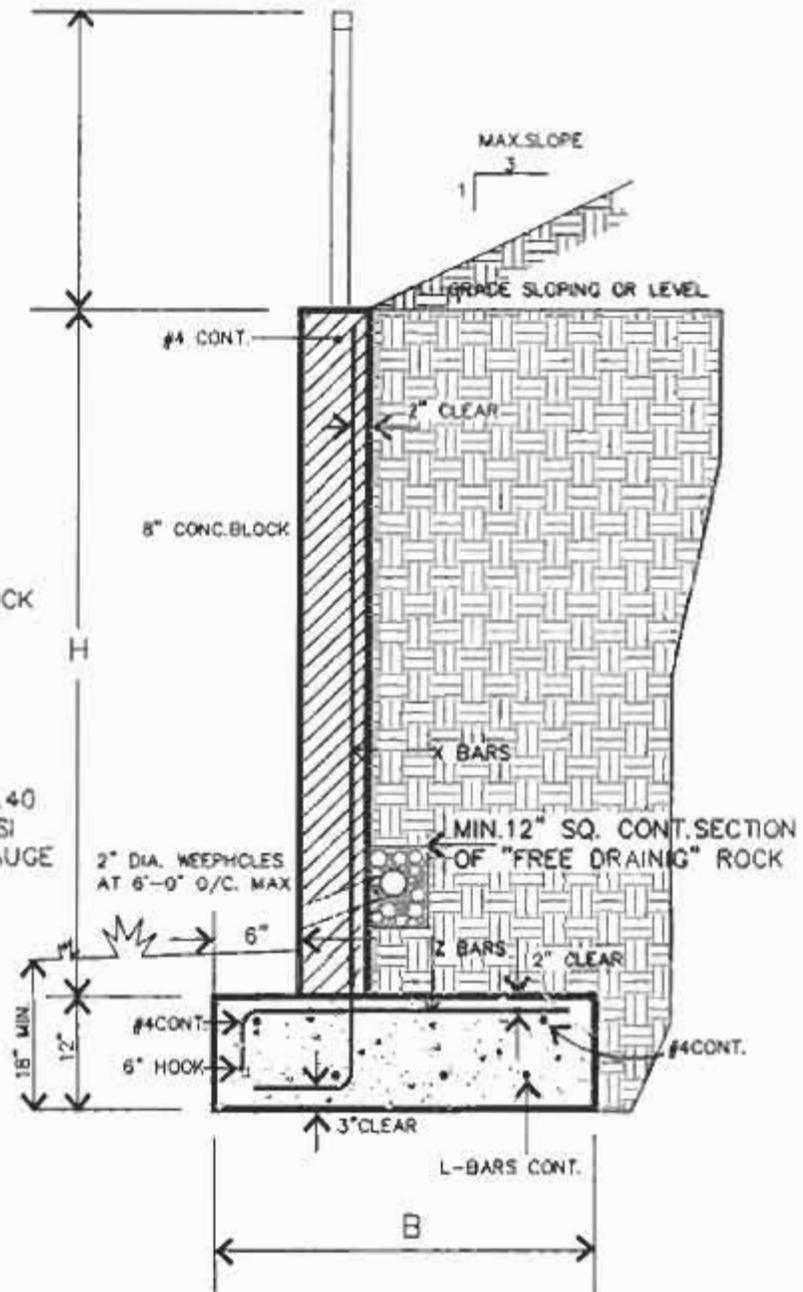
MORTAR: TYPE "S"  
1800 PSI

GROUT: 2000 PSI

REINFORCING: ASTM A615 GR.40  
 $F_y = 40,000$  PSI

PROVIDE LADDER TYPE #9 GAUGE  
CONTINUOUS JOINT REINF.  
AT 16" VERTICAL SPACINGS  
IN WALLS.

PROVIDE MIN 40 BAR  
DIAMETER LAP



H	B	X BARS	Z BARS	L BARS
6'-0"	4'-6"	#6 @ 8"	#4 @ 16"	5-#5
5'-0"	4'-0"	#5 @ 16"	#3 @ 24"	4-#5
4'-0"	3'-0"	#5 @ 32"	#3 @ 32"	3-#5
3'-0"	2'-6"	#5 @ 48"	#3 @ 32"	3-#5

### RETAINING WALL DESIGN DETAILS AND STEEL REQUIREMENTS.

RETAINING WALLS OVER 6 FEET IN HEIGHT  
OR RETAINING WALLS SUPPORTING SOLID FENCE WALLS  
OR OTHER ADDITIONAL LOADS  
MUST BE DESIGNED BY AN ENGINEER

# SINGLE FAMILY RESIDENTIAL FIRE SPRINKLER WORKSHEET 2001.1

	EXISTING	SQ. FT.		VALUE		VALUATION*	
<b>A</b>	MASONRY - A/C -		X	\$74.68		=	
	WOOD FRAME - A/C -		X	\$74.68		=	
	BASEMENT - FINISHED		X	\$74.68		=	
	BASEMENT - UNFINISHED		X	\$29.99		=	
	<b>TOTAL A =</b>						
<b>B</b>	MASONRY - GARAGE		X	\$29.99		=	
	WOOD FRAME - GARAGE		X	\$29.99		=	
	<b>TOTAL B =</b>						
<b>C</b>	PATIO/ OPEN CARPORT		X	\$29.99		=	
<b>TOTAL C =</b>							
<b>D</b>	<b>TOTAL EXISTING VALUE, (A+B+C)</b>					<b>TOTAL D =</b>	
<b>E</b>	<b>TOTAL EXISTING VALUE</b>			X	25%	<b>TOTAL E =</b>	
<b>F</b>	<b>NEW ADDITION</b>						
	MASONRY - A/C -		X	\$74.68		=	
	WOOD FRAME - A/C -		X	\$74.68		=	
	BASEMENT - FINISHED		X	\$74.68		=	
	BASEMENT - UNFINISHED		X	\$29.99		=	
<b>TOTAL F =</b>							
<b>G</b>	MASONRY - GARAGE		X	\$29.99		=	
	WOOD FRAME - GARAGE		X	\$29.99		=	
	<b>TOTAL G =</b>						
<b>H</b>	PATIO/ OPEN CARPORT		X	\$29.99		=	
<b>TOTAL H =</b>							
<b>I</b>	<b>EXISTING REMODELED SPACE</b>						
	MASONRY - A/C -		X	\$74.68	X	30% =	
	WOOD FRAME - A/C -		X	\$74.68	X	30% =	
	MASONRY - GARAGE		X	\$29.99	X	30% =	
	WOOD FRAME - GARAGE		X	\$29.99	X	30% =	
	PATIO/ OPEN CARPORT		X	\$29.99	X	30% =	
	BASEMENT - FINISHED		X	\$74.68	X	30% =	
	BASEMENT - UNFINISHED		X	\$29.99	X	30% =	
<b>TOTAL I =</b>							
<b>J</b>	<b>TOTAL NEW AND REMODEL, (F+G+H+I)</b>					<b>TOTAL J =</b>	

\*\* IF J>E, FIRE SPRINKLERS WILL BE REQUIRED\*\*

**CITY OF SCOTTSDALE**  
**INTERIM FENCE CERTIFICATION FORM**  
For Standard Plan Subdivisions Only

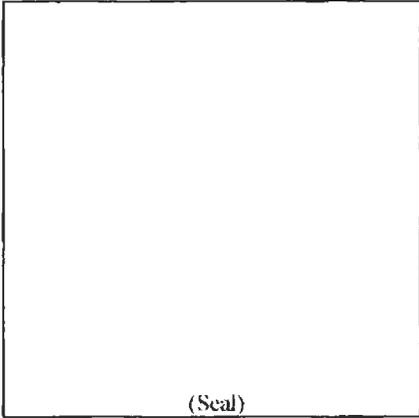
\_\_\_\_\_/\_\_\_\_\_  
Project Name (Plat Name) / Lot No.

\_\_\_\_\_  
Permit No.

\_\_\_\_\_/\_\_\_\_\_  
Engineer's Name / Company Name

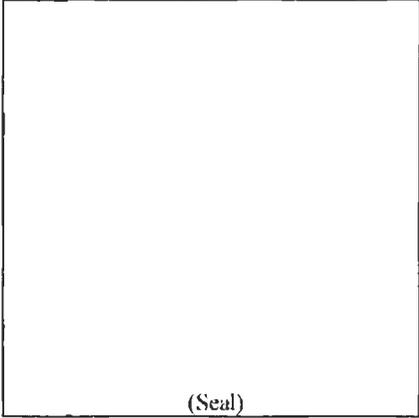
\_\_\_\_\_  
Plan Check No.

I, \_\_\_\_\_,  
as Engineer of Record for the above referenced project,  
certify that on \_\_\_\_\_ (date) I performed a site  
inspection of the referenced lot, and that *this inspection*  
*included the proposed alignment (field layout) for the*  
*fence (including, but not limited to, the location and size*  
*of drainage block openings, gates, and other related*  
*construction)*. Furthermore, I certify that the proposed  
improvements will provide adequate and acceptable  
drainage in conformance with the original basis of  
design for this development, without detrimental effect  
to this or any other lot.



City Inspector (Acknowledgment): \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

I, \_\_\_\_\_,  
as Engineer of Record for the above referenced project,  
certify that on \_\_\_\_\_ (date) I performed a site  
inspection of the referenced lot, and that *this inspection*  
*included the actual constructed fence, grading, and other*  
*related improvements (including, but not limited to, the*  
*location and size of drainage block openings, gates, etc.)*.  
Furthermore, I certify that the improvements as  
constructed will provide adequate and acceptable  
drainage in conformance with the original basis of  
design for this development, without detrimental effect  
to this or any other lot.



City Inspector (Acceptance): \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_